THE MINIMED

Paradigm® REAL-Time

INSULIN PUMP AND CONTINUOUS GLUCOSE MONITORING SYSTEM

Insulin Pump User Guide

Medtronic

Paradigm®
522 and 722 Insulin Pumps

User Guide

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℞ *Only*

REF MMT-522
MMT-722

Important Safety Information
Regarding Your Paradigm Insulin Infusion Pump
(includes all models)

Avoid Immersing Your Pump In Water

Although it is unlikely that water damage will occur if your pump is splashed or briefly dunked, **you should avoid immersing your Paradigm infusion pump in water. To swim or participate in other water activities, always disconnect from your Paradigm pump and reconnect after water play.**

If you inadvertently submerge your pump in water, dry the pump quickly using a soft, clean towel and verify that it is working properly by selecting "self test" from the pump's UTILITIES MENU. If you believe that water has entered your pump or you observe any other possible pump malfunction, please check your blood glucose, treat high blood glucose (if necessary) with an injection and contact our 24 Hour HelpLine at 1-800-MINIMED (1-800-646-4633) for further assistance. Symptoms of high blood glucose include fatigue, excessive thirst and nausea. You should always contact your healthcare professional if you experience excessively high or low blood glucose levels, or if you have any questions about your care.

Electrostatic Discharge

Although your Paradigm pump is designed to be unaffected by typical levels of electrostatic discharge (ESD), very high levels of ESD can result in a reset of the pump's software with an associated pump error alarm. In most cases, exposure to high levels of ESD will trigger the pump's A-13 alarm although, under certain circumstances, high level ESD exposure can cause A-44, Bolus Stopped or Max Delivery alarms. High levels of ESD are more likely in situations where the relative humidity is very low, such as inside a heated building during the winter in areas where it is cold outside.

If your pump experiences an A-13 or other error alarm, press the "ESC" and "ACT" buttons to clear the alarm. If you are unable to clear the alarm by pressing "ESC" and "ACT," you may need to remove and replace the pump's battery to clear the alarm. After clearing the alarm, you should always verify that your pump is set to the correct date and time and that all other settings (basal rate, max basal and bolus limits, etc.) are programmed to the desired values, since the software reset could erase your previously programmed settings. Please see the Alarms and Alerts section of this User Guide for more details regarding what to do if your pump displays an error alarm or other alert message.

Please contact our 24-Hour Line at 1-800-MINIMED (1-800-646-4633) to report any error alarms or other problems that occur with your pump.

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Your personal information

You may need the following information from your healthcare professional before going to your pump start appointment. If you are unsure, contact your healthcare professional or pump trainer for instructions.

NOTE - This information is not for the Bolus Wizard® feature. Refer to chapter 5 for Bolus Wizard feature settings.

Basal rate

Basal insulin is required to maintain your target glucose values when you are not eating. Your pump can be programmed with up to three (3) basal patterns (standard, pattern A, pattern B) to accommodate your varying insulin needs on different days (example: weekday versus weekend day). Each pattern can have up to 48 basal rates. When you first start pump therapy, your healthcare professional may only have you program one or two basal rates. Get your basal rate settings from your healthcare professional.

Standard

Basal rate number	Start time	Basal rate (units per hour)
#1	midnight	
#2		
#3		
Additional basal rates		
#4		
#5		
#6		
#7		
#8		

Pattern A

Basal rate number	Start time	Basal rate (units per hour)
#1	midnight	
#2		
#3		
(additional basal rates)		
#4		
#5		
#6		
#7		
#8		

Pattern B

Basal rate number	Start time	Basal rate (units per hour)
#1	midnight	
#2		
#3		
(additional basal rates)		
#4		
#5		
#6		
#7		
#8		

Carb ratios (meal bolus information)

Your carb ratios are used to calculate your meal boluses.

If you count grams: this ratio is the number of carb grams covered by one (1) unit of insulin.

If you count exchanges: this ratio is the number of insulin units you need to cover one carb exchange.

When	Start time	(grams/u or u/exch)
breakfast		
lunch		
dinner		
snacks		

Chapter 1

Introduction

Thank you for choosing Medtronic MiniMed as your partner in helping you gain better control of your diabetes. Whether you are beginning pump therapy for the first time or upgrading from a previous model, we believe that the combination of state-of-the-art technology and the simple, menu-driven programming of the pump will provide many benefits.

This user guide is designed to help you to understand pump therapy and the operation of your pump. We strongly recommend that you work closely with your healthcare professional for a safe and complete pump start.

Your pump is indicated for the continuous delivery of insulin, at set and variable rates, for the management of diabetes mellitus for persons requiring insulin. Based on your settings, the pump delivers your custom basal automatically and continuously 24-hours a day. It also provides bolus deliveries to support your immediate insulin needs for food intake and/or high blood glucose. The Bolus Wizard feature can calculate your bolus amount for you based on your personal settings.

Availability

The pump and accompanying products are available from Medtronic MiniMed and authorized distributors.

Assistance

Medtronic MiniMed provides a 24 Hour HelpLine for assistance. The HelpLine is staffed with technicians who are trained in the set-up and operation of the pump and are able to answer pump-related questions. When calling the HelpLine or your local Medtronic MiniMed office, please have your pump and serial number available. The phone number for the 24 Hour HelpLine is also on the back of your pump.

Department	Telephone number
24 Hour HelpLine (calls within the United States)	800.646.4633 (800.MiniMed)
24 Hour HelpLine (calls outside the United States)	818.576.5555
Web site	www.minimed.com

Emergency kit

Keep an emergency kit with you at all times to make sure that you always have necessary supplies. Inform a family member, co-worker, and/or friend where this emergency kit is kept. Please refer to the “User safety” section in this chapter for more information on pump safety. Your emergency kit should include these items:

- Fast-acting glucose tablets
- Blood glucose monitoring supplies
- Urine ketone monitoring supplies
- Extra Paradigm infusion set and Paradigm reservoir
- Insulin syringe and fast-acting insulin (with dosage instructions from your healthcare professional)
- Paradigm® Wallet Card
- Dressing and adhesive
- Glucagon Emergency Kit®
- Extra AAA alkaline batteries (Energizer® brand is recommended)

CAUTION:	**If you give yourself insulin by using a syringe, the Bolus Wizard feature will not be able to correctly determine the active insulin in your system.You must generally wait at least 8 hours after an injection before relying on your Bolus Wizard feature to calculate your active insulin. But, the length of time you need to wait depends on your active insulin setting in the Bolus Wizard feature. See “About active insulin” on page 60 for more information.**

Disposables

The pumps use disposable reservoirs and infusion sets for insulin delivery. Installation instructions for Paradigm reservoir and infusion sets are provided in chapter 4, “Starting on insulin.”

- **Reservoirs:** The 522 pump is intended for use with a 176-unit Paradigm reservoir (MMT-326). The 722 pump is intended for use with a 300-unit Paradigm reservoir (MMT-332), however it can also use the MMT-326 as well.
- **Infusion sets:** Medtronic MiniMed provides a variety of Paradigm infusion sets to fit your needs. Contact your healthcare professional who will assist you to choose an infusion set that fits your needs.

WARNING:	**For your protection the pump has undergone extensive testing to confirm appropriate operation when used with Paradigm reservoirs and Paradigm infusion sets manufactured or distributed by Medtronic MiniMed. We recommend using Medtronic MiniMed infusion sets and reservoirs as we cannot guarantee appropriate operation if the pump is used with reservoirs or infusion sets offered by third-parties and therefore we are not responsible for any injury or malfunctioning of the pump that may occur in association with such use.**

Accessories

- **Meter:** You can program your pump to automatically receive your BG reading from a linked meter which may have been included with your pump.
- **Remote control:** The optional Paradigm remote control can be used with the pump to deliver normal boluses and suspend/resume the pump from a distant location. (This User Guide provides programming instructions for the remote control. Refer to the remote control User Guide for operating instructions.)
- **Transmitter:** The transmitter (MMT-7703) is a small device that connects to the sensor. It comes with a blue tester and a charger. When connected to a sensor that is inserted in the body, the transmitter automatically initializes the sensor and begins to periodically transmit glucose data to the pump using a radio signal.

- **Sensor:** The sensor continuously converts tiny amounts of glucose from your fatty layer under the skin into an electronic signal.
- **ComLink:** The Medtronic MiniMed ComLink is used to download the Paradigm 522 or 722 pump data to the diabetes management software using a serial communications interface cable installed on your computer.

To order supplies, call 800-646-4633 (1-800-MiniMed) 818-362-5958 (outside U.S.)
www.minimed.com

How to wear your pump

There are different ways to wear your pump. Medtronic MiniMed has optional accessories that can hide, protect, and add to the convenience of wearing a pump. Refer to the accessories catalog or the website (www.minimed.com) for more information.

- **Holster:** to wear the pump on your belt.
- **Pump clip:** to wear the pump underneath your clothing.
- **Activity guard:** If you are active in sports, or you are a child, use the guard to protect the pump from disconnecting.
- **Leather case:** Fine leather lined with nylon. Styling complements business and formal wear. Velcro flap provides easy access to pump for programming. Wear it vertically with the built-in belt clip.

How to use this guide

NOTE - This user guide shows sample screens only. Your pump screens may be slightly different.

For step-by-step instructions, refer to the appropriate sections in this guide. Refer to the Glossary for definitions of terms and functions. The terms and symbols used in this guide are in the table below.

Term / symbol	Meaning
"Press"	to push and release the button
"Hold"	to push and keep pressure on the button
"Select"	to press / to highlight a screen item you want to select
"Exit the menus"	press **ESC** until the HOME screen appears
Pump Buttons	always bold and uppercase; for example, **ESC**, **ACT**
Screen and menu names	always uppercase; for example, MAIN MENU, REWIND screen
Menu selections	always bold; for example, **12-Hour Setup**, **On**, **Off**
Flashing (blinking) screen item	you can change the value for that item with the / buttons
NOTE and **TIP**	additional helpful information
CAUTION	warns of a potential hazard which, if not avoided, may result in minor or moderate injury to the equipment
WARNING	notifies you of a potential hazard which, if not avoided, could result in death or serious injury. It may also describe potential serious adverse reactions and safety hazards
"Go to the...screen."	when a step instructs you to "Go to" a screen, the path to that screen is shown. For example: Go to the ALARM MENU. **Main > Utilities > Alarm** 1. From the MAIN MENU, select **Utilities** and press **ACT**. 2. In the UTILITIES MENU, select **Alarm** and press **ACT**. 3. The ALARM MENU appears.

User safety

Indications

Pump

The Paradigm 522/722 pump is indicated for the continuous delivery of insulin, at set and variable rates, for the management of diabetes mellitus in persons requiring insulin.

Sensor and transmitter

The sensor and transmitter components are indicated for continuous or periodic monitoring of glucose levels in the fluid under the skin, and possible low and high blood glucose episodes in adults (ages 18 and older). It alerts if a glucose level falls below or rises above preset values. Values are not intended to be used directly for making therapy adjustments, but rather to provide an indication of when a fingerstick may be required. All therapy adjustments should be based on measurements obtained using a home glucose monitor and not on Paradigm 522/722 pump system values.

Contraindications

Pump therapy is not recommended for people who are unwilling or unable to perform a minimum of four (4) blood glucose tests per day and to maintain contact with their healthcare professional. Successful insulin pump therapy requires sufficient vision or hearing to allow recognition of the pump signals and alarms.

Warnings

Reservoir and infusion sets

Standard Luer sets are not compatable with the Medtronic Minimed Paradigm pump. Medtronic MiniMed Paradigm reservoir and Paradigm infusion sets are specifically designed for use with the pump. Do not modify your Paradigm reservoir or Paradigm infusion set.

Do not put any other drugs/medications inside your reservoir to use with this pump. Only insulin that has been prescribed by your physician can be used in this pump.

X-rays, MRIs and CT scans

If you are going to have an X-ray, CT scan, MRI or other type of exposure to radiation, **take off your pump, meter and remote control** and remove them from the area.

The Paradigm pump is designed to withstand common electromagnetic interference, including airport security systems. Be sure to carry the Airport Card provided when you are traveling.

Precautions

Although the pump has multiple safety alarms, it cannot notify you if the set is leaking or the insulin has lost its potency. **It is essential, therefore, that you test your blood glucose levels at least four times per day.** If your BG is out of range, check the pump and the infusion set to ensure that the necessary amount of insulin is being delivered.

Avoid extreme temperatures

1. Avoid exposure of your pump and remote control to temperatures above 108°F (42°C) or below 34°F (1°C).
2. Insulin solutions freeze near 32°F (0°C) and degrade at high temperatures. If you are outside in cold weather, wear your pump close to your body and cover it with warm clothing. If you are in a warm environment, take measures to keep your pump and insulin cool.
3. Do not steam, sterilize or autoclave your pump or remote control.

Infusion sets and sites

Avoid using an infusion site that will be irritated by clothing and accessories, or by rigorous stretching and exercise.

Notice

CAUTION: Any changes or modifications to the devices not expressly approved by Medtronic MiniMed could void your ability to operate the equipment.

Insulin pump and RF accessories

The pump, meter, transmitter and remote control comply with the United States Federal Communications Commission and international standards for electromagnetic compatibility.

Do not use the RF meter to send your BG reading to the pump while on an aircraft. Manually enter your BG. Do not use the sensor feature while on an aircraft.

These devices comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. It does not interfere with any RF signals transmitted from outside sources.

These standards are designed to provide reasonable protection against excessive radio frequency interference and prevent undesirable operation of the device from unwanted electromagnetic interference. Operation is subject to the following two conditions:

1. This device has been tested and found to comply with the regulations governing such devices in your area. For the specific regulation and test results for your area, please contact the Medtronic MiniMed 24 Hour HelpLine.
2. This device generates, uses, and can radiate radio frequency energy and, if installed and used in accordance with the instruction, may cause harmful interference to radio communications. If the device does cause interference to radio or television reception, you are encouraged to try to correct the interference by one or more of the following measures:
   - Reorient or relocate the insulin pump/remote control/transmitter/meter
   - Increase the separation between the insulin pump/remote control/transmitter/meter and the device that is receiving/emitting interference

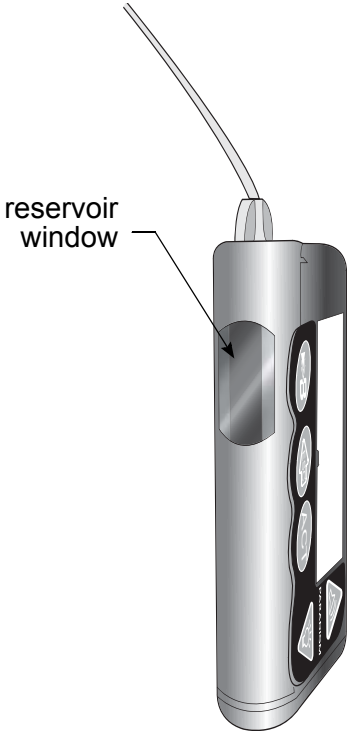
   The meter and the transmitter transmit information to the pump using radio frequency. If other devices that use radio frequency are in use, such as cell phones, cordless phones and wireless networks, they may prevent communication between the pump and the meter. This interference will not cause any incorrect data to be sent and will not cause any harm to your pump or meter. Moving away from or turning off these other devices may allow communication. Refer to Chapter 9, “Troubleshooting” to correct interference problems you may have.

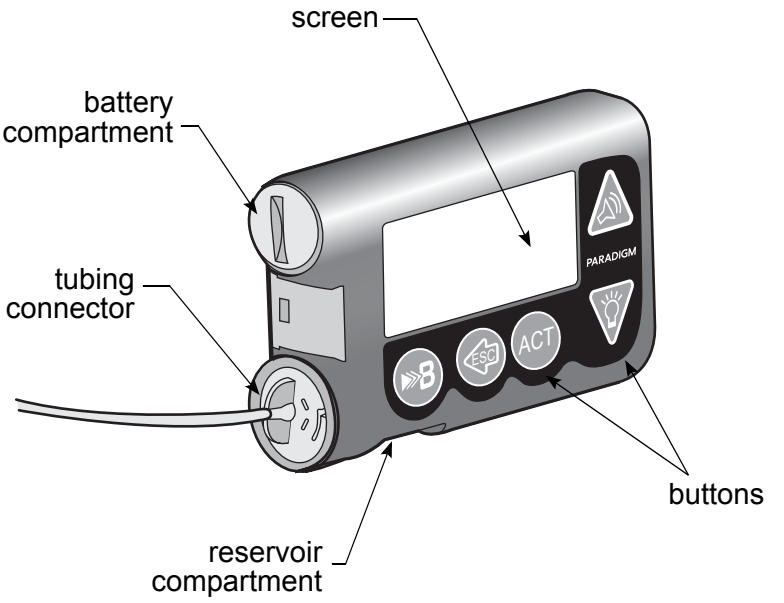
   If you have questions, please contact the Medtronic MiniMed 24 Hour HelpLine.

Your pump

CAUTION:	**Never use sharp objects to press the buttons on your Paradigm pump as this can damage the buttons or compromise the seal of the pump. Some examples of sharp objects that may damage your keypad are fingernail files, pens or pencils, paper clips, knives, scissors, and keys.**

Take a look at your pump. The reservoir window allows you to view the insulin in the reservoir. The reservoir, with the tubing connector attached, is inserted into the reservoir compartment of the pump.



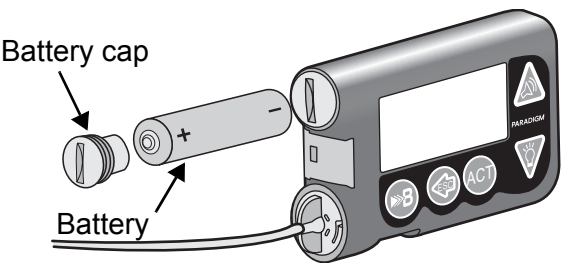


Install battery

CAUTION: **Do not use a rechargeable or carbon zinc battery in your pump. For best results, a new AAA Energizer alkaline battery is recommended.**

Medtronic MiniMed designed the pump to only accept a NEW battery. As a safety measure, if you install a battery that does not have full power, the "weak battery" or "failed batt test" alarm may sound. If you receive a "weak battery" alarm, respond to the alarm and continue. The pump will still operate normally, but with a decreased battery life. The pump uses one AAA alkaline battery.

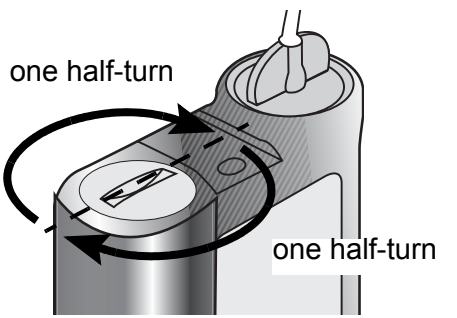
1. Make sure all the following apply:
   - Clear (**ESC, ACT**) any alarms and/or alerts before removing and replacing the battery
   - Make sure the pump is at the HOME (idle) screen when you remove the battery.
   - Do NOT remove the battery during a bolus or prime delivery.
2. Use the edge of a coin to remove the battery cap. Turn the cap in a counter-clockwise direction.
3. Remove the old battery and dispose of it per the disposable requirements of your state or country. Put the new battery in the pump with the negative (-) end going in first. Check the label on the back of the pump to make sure the battery is inserted correctly.



NOTE - Do not use batteries that have been in cold storage (i.e., in the refrigerator or your car in the winter).

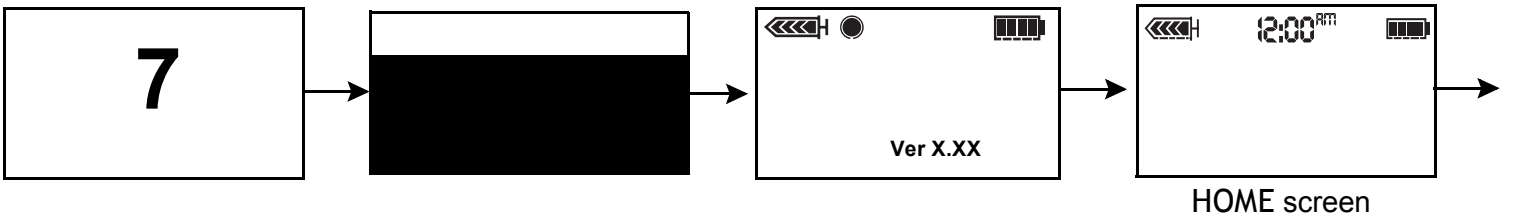
4. Place the battery cap in the pump and tighten so the slot is aligned horizontally with the pump as shown here:

   Do NOT apply force when you turn the cap.



CAUTION: Do NOT over-tighten the battery cap. You should not turn the cap more than four half-turns. If you over-tighten the cap, you may not be able to remove it and you can damage your pump.

5 While the pump turns on, it will show various screens until the HOME screen appears.



NOTE - If you are replacing a battery for a pump that has recently been in use, the only screen you will see before the HOME screen is the one displaying the version number.

If the HOME screen does not appear, do these steps:

a. Check that the battery is inserted correctly. If the battery has been installed backwards, remove the battery and install it properly.

b. If your pump still does not turn on or you get a FAILED BATT TEST alarm, remove and replace the battery with a new one.

c. If the pump is still not on, call the Medtronic MiniMed 24 Hour HelpLine.

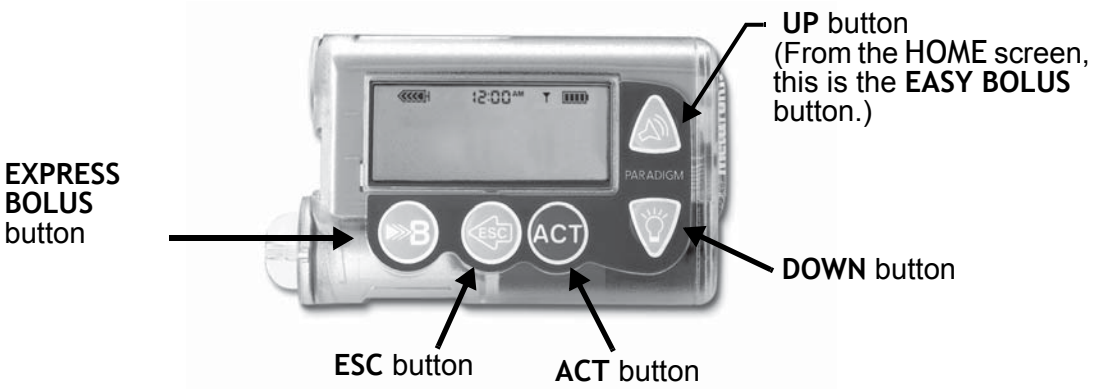
6 Check to make sure the time and date are correct. If more than 5 minutes have passed since you removed the battery, you will be prompted to check the time and date. Refer to the section, "Setting the time and date" in chapter 3 for programming instructions.

7 Press **ESC** to view the STATUS screen, making sure no alarms are active. If an alarm is active, follow the instructions on the screen.

NOTE - Make sure that you dispose of the battery per your local battery disposal regulations.

Pump buttons

The buttons on the pump are used to navigate through the menus and screens, and to program the features of the pump.



From the HOME screen

EASY BOLUS™ button—Shortcut to set and deliver an Easy Bolus.

Turns the backlight on/off from the HOME screen.

ACT Opens the MAIN MENU.

ESC **If Sensor is off:**
Opens the pump STATUS screen.

If Sensor is on:
1 press shows a 3-hour BG graph,
2 presses show a 24-hour BG graph,
3 presses open a pump STATUS screen,
4 presses open a sensor STATUS screen.

From the menus and programming screens

Increases / decreases the value of a flashing item.

Scrolls up and down the items in a list.

ACT Accepts a selected menu item or activates a selected setting.

ESC Returns to previous screen. Cancels settings if the **ACT** button has not been pressed yet.

EXPRESS BOLUS button: Short-cut from the HOME screen to the SET BOLUS menu or Bolus Wizard to set up any bolus.

Press simultaneously with to turn on backlight when in the menus, or press as a “shift” button in combination with another button to access certain features.

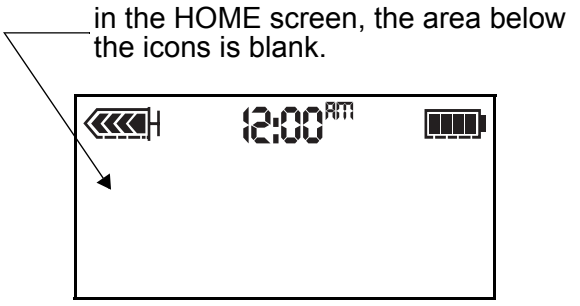
The pump screen

The screen shows five lines of text at one time. The first is the operating mode. The second is the current open menu or function. The last three lines show either information or text that you can select for the current function.

NOTE - The screen text in the examples used in this guide might not exactly match the text on your pump screen. Please follow your pump screen instructions. If you have any questions, call the Medtronic MiniMed 24 Hour HelpLine.

HOME screen

The HOME screen serves as the starting point to access the programming screens. When no buttons are pressed for about 30 seconds, the pump returns to this screen.



When you press **ACT** from the HOME screen, the MAIN MENU will appear.

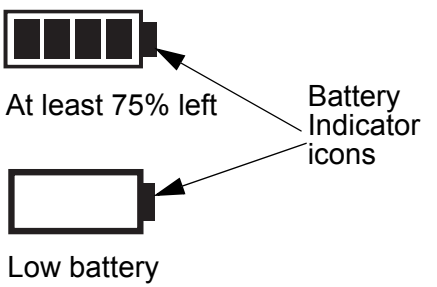
When the pump is on, the following icons always appear across the top of the screen: reservoir volume icon, the time (12 or 24 hr), and the battery icon. If these do not appear, the pump is not operating.

Screen icons

There are various icons that appear at the top of your pump screen, like the time, battery and reservoir icons mentioned above. The next sections describe what the icons mean.

Battery

The battery icon tells you how much usable life is left in your battery. There are four segments in the icon. Each segment represents approximately 25 percent of the usable battery life you have left until you reach Low Battery point. If you only have one segment left, make sure you have a new battery available.



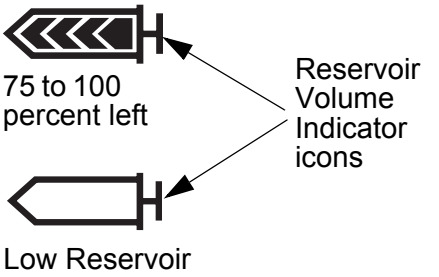
Time display

The current time of day is displayed across the top of the pump screen in the format you select—12-hour or 24-hour. The AM or PM is only displayed for the 12-hour format. For instructions on setting the time on your pump, see“Setting the time and date” on page 21.

Reservoir volume

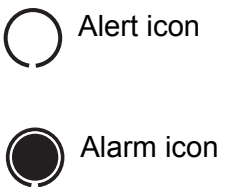
The reservoir volume icon tells you how much insulin is in your pump. This icon is also divided into four segments. Each segment represents approximately 25 percent of the reservoir volume you have left . Refer to your STATUS screen to view the number of units left in reservoir.

NOTE - If using the Paradigm 722, your reservoir icon will only appear full if using a filled 300 unit Paradigm reservoir.



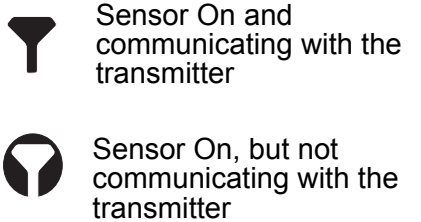
Alert and alarm icons

An open circle (alert) or a closed circle (alarm) are displayed in the upper part of your pump screen only when there is an alert or alarm condition on your pump. For alarm and alert information, see “Alarms” on page 127. For sensor alarms and alerts, see the user guide that came with your pump, called “Paradigm 522 and 722 Sensor Features.”



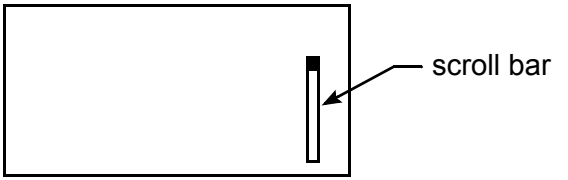
Sensor icons

If an antenna icon displays, the pump and transmitter are communicating. If the antenna colors are reversed, the Sensor feature is on, but there is no communication.For information about the Sensor feature, see the user guide that came with your pump, called “Paradigm 522 and 722 Sensor Features.”



Scroll bar

If there is more text than the screen can show, a scroll bar appears in the right side of the screen. Press to view any additional text.



Screen backlight

When you press from the HOME screen, the light on the screen turns on or off. During programming, the backlight can be turned on by pressing the and the together. The light will stay on while you are pressing any of the pump buttons. It will stay on as long as the current screen is active.

To conserve your battery, the backlight will turn off automatically while the pump is vibrating. After the vibration is finished, the light will turn back on. The backlight cannot be turned on in a Low Battery condition.

Beep/vibrate

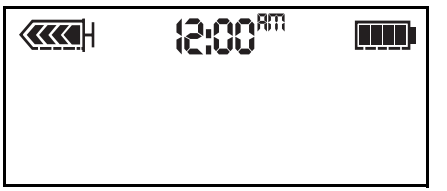
Your pump will beep or vibrate to indicate activity. Refer to the section, “Setting your alert type” in chapter 8 for setup instructions.

Operating modes

The screen lets you know when a special feature is active or if there is a condition that needs your attention. The active features and pump status will determine the operating mode. The screens for the three modes are shown below.

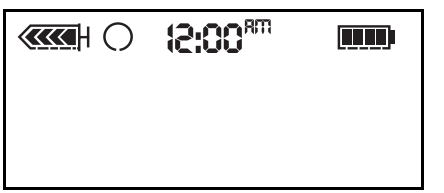
WARNING: When the pump is in "Attention mode," all insulin deliveries are stopped.

Normal - mode for standard pump operations for normal basal and bolus delivery. No special features are active (i.e., basal patterns, temp basal, etc.). No alarms or alerts exist.



Normal Mode

Special - indicates a special feature is active or an alert condition(s) exists. Special mode does not restrict any of the pump functions. When the pump is in Special mode, an open circle appears at the top of the screen and it will beep/vibrate periodically to remind you of the condition. The conditions and features that will put the pump in Special mode are:



Special Mode

- Low Reservoir condition
- Low Battery condition
- Block feature is on
- Dual or Square Wave bolus delivery
- Basal pattern A or B is active
- Sensor alerts
- Temporary basal delivery

Attention - indicates insulin delivery has stopped. This can mean that the pump is in Suspend mode. It can also mean an alarm is active or an alarm condition exists that needs immediate attention for insulin delivery to resume. A solid circle appears at the top of the screen and the pump will beep periodically until either the pump is taken out of Suspend mode or the condition is cleared. The screen will show text describing the condition that put the pump in Attention mode. For example, if the reservoir is empty, “Empty Reservoir” will appear on the screen.

Attention Mode

When the pump is in Attention mode, it will beep/vibrate periodically to remind you of the condition. The beep/vibrate frequency varies depending on the condition that put the pump in Attention mode. Refer to the section “Alarm conditions” in chapter 9 for alarm conditions that will trigger the Attention mode. See “Stopping your pump” in chapter 3 to learn about the Suspend mode.

Menus

The MAIN MENU is the highest level menu. There are submenus, functions, status and programming screens in the lower menu levels. The menus are described in the following paragraphs.

TIP - *If a screen item is flashing (blinking), during programming, press* / *to change the value.*

MAIN MENU - Highest menu level in the menu system. When you press **ACT** from the HOME screen, the MAIN MENU will appear.

BOLUS MENU - Contains the settings and function for bolus deliveries. The button allows direct access to the MANUAL BOLUS or to the Bolus Wizard feature without having to navigate through the menus. Refer to Chapter 3, “Basic programming” for the manual bolus information or to Chapter 5, “Using the Bolus Wizard feature” for bolusing using the Bolus Wizard feature.

SUSPEND - Stops all current insulin deliveries (basal, bolus and fixed prime). Refer to section “Stopping your pump” in chapter 3 for more information.

SENSOR - Contains the functions to setup the interface between the sensor and the pump and has access to the pump's sensor features. Refer to the sensor user guide that came with you pump, "Paradigm 522 and 722 Sensor features," for more information.

BASAL MENU - Contains the functions to setup and deliver your basal insulin. Refer to chapter 3, "Basal" for more information.

PRIME MENU - Contains the functions required to change your reservoir and fill the infusion set with insulin. Refer to the section "Changing your infusion set" in chapter 4 for more information.

UTILITIES MENU - Contains features for your safety and convenience. Refer to Chapter 8, "Utilities" for more information.

STATUS screen

The STATUS screen shows information about what your pump is doing. The information that shows on the STATUS screen depends on the current activities and conditions of your pump.

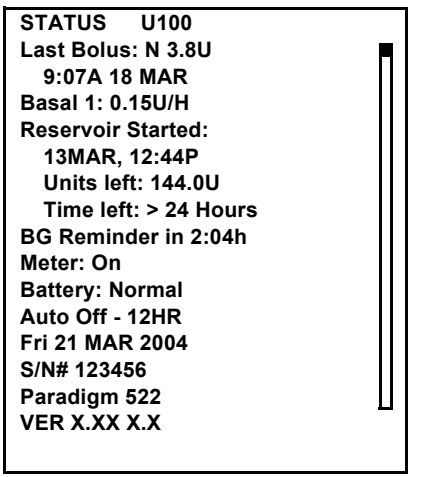
- To open the STATUS screen, press **ESC** until the STATUS screen appears
- To view more text on STATUS screen, press / to scroll and view all of the information.
- To exit the STATUS screen, press **ESC** until the STATUS screen disappears.

The screen includes information about:

- Recent insulin deliveries (basal and bolus)
- Special features that are turned on
- Reservoir status
- Battery status
- Time and date

NOTE - Do not check your pump status (press ESC) when you are programming your pump. If you press ESC during programming, you will cancel the settings you are trying to enter.

Refer to Chapter 11, "Pump specifications" for a complete list of the information that is accessed from the STATUS screen.



Sample STATUS screen

If you remove your pump

Pump settings

You may have an occasion when you need or want to remove your pump. If you have to remove and store your pump, it is recommended that you store it with the battery in place. Keep a record of your current basal rates. To preserve battery life, reset the basal rates to 0 (zero), turn off the RF options (meter, remote), and set Auto-off to dashes or zeroes.

NOTE - Your pump keeps a record of the basal and bolus insulin it delivers. Setting your basal to 0.0 while you are disconnected ensures that the insulin delivery records in your pump are accurate.

Insulin

Remember, your body still needs insulin while your pump is removed.

It is important that you consult with your healthcare professional to determine an alternate method of receiving your insulin. You can remove your pump for up to one (1) hour without taking insulin. If you remove your pump for more than one hour, you will have to use another way to take your insulin, such as injections of fast-acting insulin, or reconnecting your pump to take boluses. Take the injection or bolus approximately every four (4) hours. Calculate the amount of insulin to take based on the total of your basal insulin in four (4) hours. Include the amount you need for meal and correction boluses. If you will have your pump off for several days, you will need to return to a multiple injection regimen.

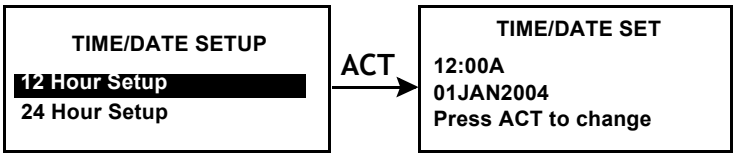
Setting the time and date

Setting the correct time and date in your pump is necessary for accurate basal insulin delivery and allows you to keep an accurate record of your insulin delivery and other pump functions. You can select a 12-hour or 24-hour clock. You must reset the time and date if you receive a CHECK SETTINGS alarm or you clear your settings (Clear Settings function).

1. Go to the TIME/DATE SETUP screen.

   Main > Utilities > Time/Date

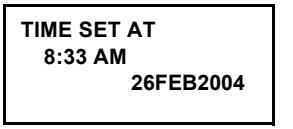
2. Select **12-Hour Setup** or **24-Hour Setup** and press **ACT**.
3. Press **ACT** again to change the settings.
4. Change each of the settings as follows:



Hour	Minutes	Year	Month	Day
SET HOUR 12:00A	SET MINUTES 9:00A	SET YEAR 2004	SET MONTH 01	SET DAY 01
Change the hour. Press **ACT**. For 12-hour setups, press ▽/△ until the correct **A** (am) or **P** (pm) appears.	Change the minutes. Press **ACT**.	Change the year. Press **ACT**.	Change the month. Press **ACT**.	Change the day. Press **ACT**.

5 The TIME SET AT screen will show the settings that you programmed. Press **ACT** and exit the menus.

Your time/date settings are complete.



Bolus

There are three bolus types: Normal, Square Wave®, and Dual Wave®. This section gives instructions for a Normal bolus using the express bolus button and navigating through the menus. (For information about Square Wave and Dual Wave boluses, refer to chapter 6, “Optimizing pump therapy.”)

The Normal bolus delivers an immediate food or correction bolus. It can be delivered at any time except during another Normal bolus. During a Normal bolus, most pump features are disabled until after all the bolus has been delivered. The Suspend function and the STATUS screen, however, are always available.

Normal bolus

Normal bolus can be used to cover the carbohydrate in a meal or snack and/or to correct a blood glucose that is higher than the target that was chosen for you.

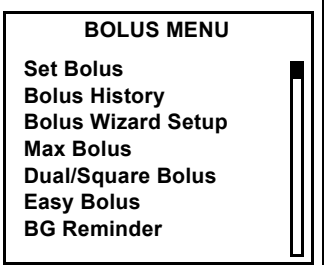
The following instructions are for a Normal bolus when the Bolus Wizard feature is turned off.

From the menu

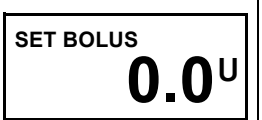
1 Go to the BOLUS MENU.

Main > Bolus

Select **Set Bolus** and press **ACT**. Go to step 2.



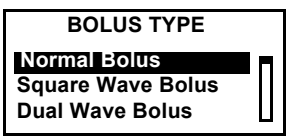
2 **If the** SET BOLUS **screen appears:** (Dual/Square option is off) Go to step 3.



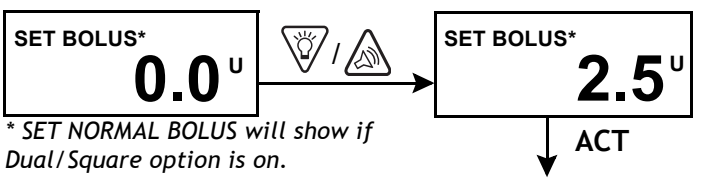
Using the EXPRESS BOLUS button

1 Press on your pump. Go to Step 2.

2 **If the** BOLUS TYPE **screen appears:** (Dual/Square Wave is on) Select **Normal Bolus** and press **ACT**. Go to step 3.



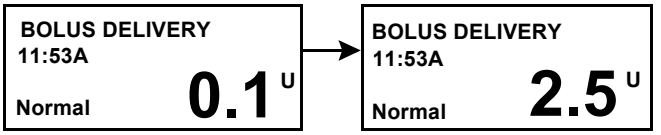
3 Enter your bolus amount and press **ACT**.



** SET NORMAL BOLUS will show if Dual/Square option is on.*

NOTE - If you have BG Reminder turned on, a screen displays allowing you to accept or modify the length of time after this bolus before you are reminded to check your blood glucose. See the section, "BG reminder" for information about this feature.

4 Press **ACT** to accept and deliver the bolus. The Normal bolus will start. As the bolus delivers, the amount shown on the screen will increase until the entire bolus has been delivered.



The pump will beep/vibrate at the start of the bolus. When the bolus is finished, the pump will beep/vibrate again and the HOME screen will appear.

Below are some practice lessons that will help you understand this pump feature.

Normal meal bolus using the exchange system

Normal bolus can be used to cover the carbohydrate in a meal or snack and to correct a blood glucose that is higher than the target that was chosen for you.

Fred has been taught that he needs to take 1 unit of insulin for every carbohydrate exchange that he eats (every milk, starch or fruit). For lunch today he will eat:

Turkey sandwich with two slices of bread	**2** starches
1 small apple	**1** fruit
1 cup of non-fat milk	**1** milk
Total carbohydrate exchanges =	**4**

Fred's lunch has a total of 4 carbohydrate exchanges so he will take a meal bolus of 4 units for his lunch.

Bolus practice:

Going through the menus, program a 2.0 unit Normal bolus now.

Check here if you were able to program it. ☐

Using the **EXPRESS BOLUS** button , program a 2.0 unit Normal bolus now.

Check here if you were able to program it. ☐

NOTE - Make sure that you are not connected to your pump while practicing.

Normal meal bolus practice using exchanges:
Choose a meal you might eat and fill in the blanks.

Food: _____ exchange: _____

_____ exchange: _____

_____ exchange: _____

total exchanges: _____

You will take _____units of insulin for each exchange. Your total bolus is _____ for this meal.

Normal meal bolus using carbohydrate counting

Lydia has been taught that she needs to take 1 unit of insulin for every 10 grams of carbohydrate. This is her insulin to carbohydrate ratio. For dinner she will have:

4 oz. broiled chicken	**0** grams
2/3 cup of rice	**30** grams
½ cup cooked broccoli	**5** grams
1 oz. dinner roll	**15** grams
1 tsp margarine	**0** grams
total grams of carbohydrates =	**50** grams

Lydia's dinner totals 50 grams of carbohydrate. Her insulin to carbohydrate ratio is 1 unit: 10 grams. She will take a meal bolus of 5 units for her dinner. She determined this by dividing 50 (total grams of carbohydrate) by 10 (insulin to carbohydrate ratio).

Choose a meal you might eat and fill in the blanks.

Food: _____ grams of carbohydrate: _____

_____ grams of carbohydrate: _____

_____ grams of carbohydrate: _____

total grams of carbohydrate: _____

Your insulin to carbohydrate ratio: 1 unit of insulin for _____ grams carbohydrate.
Divide your total carbohydrates by your insulin to carbohydrate ratio and take _____units of insulin for your meal.

Meal bolus, correction bolus and insulin sensitivity

3a

Jason is ready to eat his breakfast. He has calculated that he will need 4.0 units for his food.

He tests his blood glucose and finds that it is 200 mg/dL (11.1 mmol/L). Jason knows that his blood glucose level is above his blood glucose target and will need additional insulin before he eats.

Jason's healthcare professional has determined the following for him:

Target BG:	110 mg/dL (6.1 mmol/L)
Insulin sensitivity:[1]	36 mg/dL (2.0 mmol/L)

3b

Jason determines that he will need a correction bolus of 2.5 units insulin to lower his elevated blood glucose. The 2.5 correction bolus will lower his current BG of 200 mg/dL (11.1 mmol/L) to his target of 110 mg/dL (6.1 mmol/L).

Elevated blood glucose:	200 - 110 = 90 mg/dL (11.1 - 6.1 = **5 mmol/L**)
Correction bolus:	90 / 36 (insulin sensitivity) = **2.5 units**

(He will add this 2.5 correction bolus to the 4.0 units of insulin that he will need for his meal bolus. Jason will take a total bolus of 6.5 units.)

1.Insulin sensitivity is the amount (in mg/dL or mmol/L) by which blood glucose will be lowered after taking 1 unit of insulin. Consult with your healthcare professional to determine your insulin sensitivity.

Practice: Meal bolus
You have determined your meal bolus as: _____ units. Your target blood glucose range is: _____ to _____ (average is _____). Your current blood glucose level is: _____. Your correction factor is: 1 unit of insulin will drop your BG _____. You will take _____ unit(s) of insulin to correct your high BG level. Your total bolus (meal bolus plus correction bolus) is _____.

Review your bolus deliveries

You can view a list of your bolus deliveries in the BOLUS HISTORY screen. This screen shows a list of the dates, times, units, and types for your last 24 boluses. This feature is helpful for record keeping or to check if you bolused for your last meal.

If a bolus was stopped before delivery was complete, the BOLUS HISTORY screen will show only the amount actually delivered. Refer to the next section “Bolus details” for instructions about viewing bolus details.

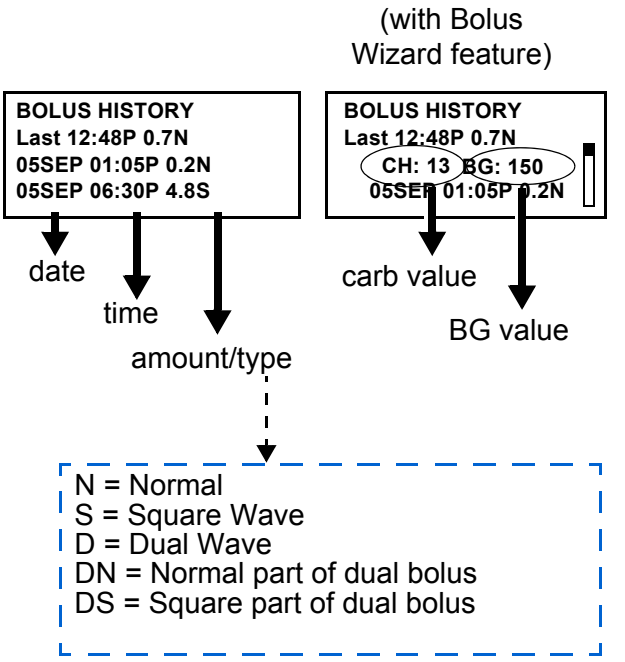
Do the following steps to view the BOLUS HISTORY screen:

1. Go to the BOLUS HISTORY screen and scroll through the bolus deliveries.

   Main > Bolus > Bolus History

   If you used the Bolus Wizard feature to deliver any of these boluses, the screen shows the carbohydrate/food (CH) and BG values that the Bolus Wizard feature used to calculate the boluses.

2. Refer to the instructions in the next section “Bolus details” to see the details for any of these boluses.



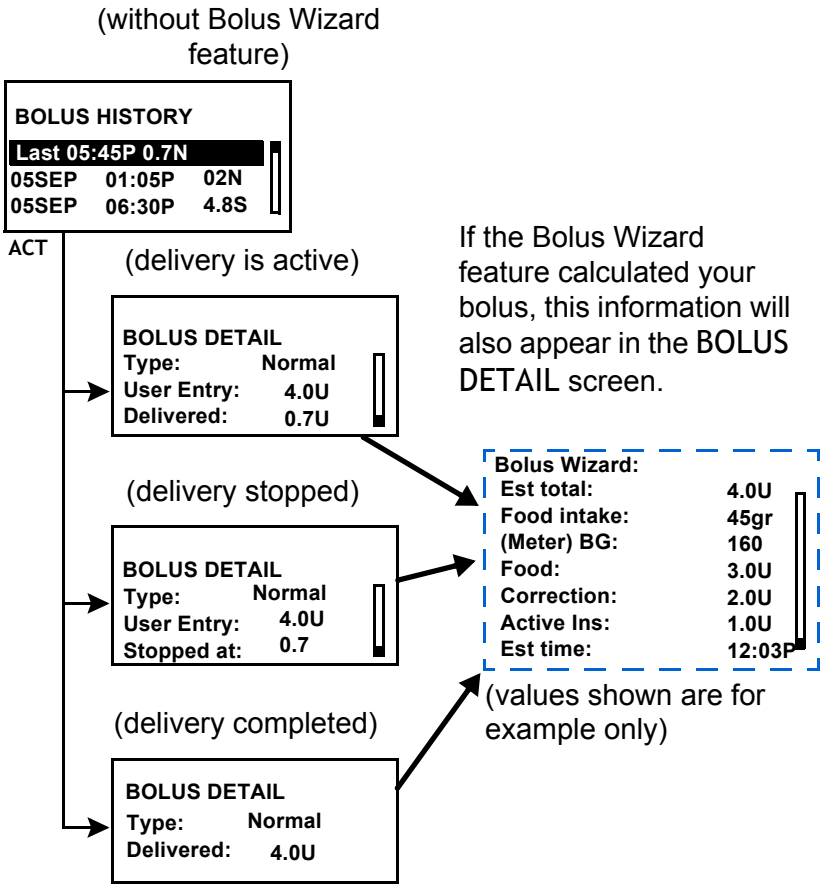
Bolus details

You can view the details for any of the deliveries in the BOLUS HISTORY screen. The details include:

- Bolus types: Normal, Square, and Dual
- Programmed bolus amount
- Delivered bolus amount
- Bolus Wizard feature information (if used)

To see the details for any bolus, do these steps:

1. In the BOLUS HISTORY screen, select the bolus that you want to review and press **ACT**.
2. The details for that bolus will appear on the screen. Scroll through the details.
3. Exit when you are done.



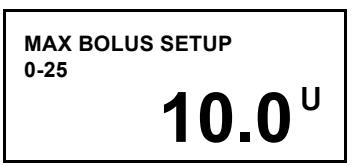
Maximum bolus limit

The maximum bolus (max bolus) is a safety feature that limits the amount of insulin that can be delivered in a single bolus. The factory setting is 10.0 units. You can specify the limit from 0.0 to 25.0 units. It is important to discuss this feature with your healthcare professional to determine your maximum bolus amount.

To set the maximum bolus limit, do these steps:

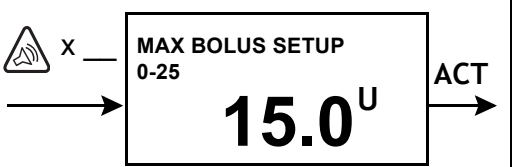
1 Go to the MAX BOLUS SETUP screen.

Main > Bolus > Max Bolus

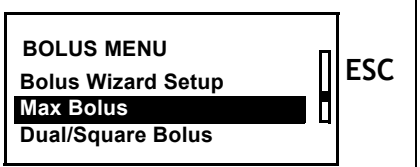


(flashing)

2 Set your maximum bolus limit and press **ACT**.



3 Your maximum bolus is set. Exit the menus.



Example 1: Max bolus

Shelby takes very small doses of insulin for her meal boluses. As a safety limit, she and her healthcare professional reset her pump with a maximum bolus of 5.0 units.

Example 2: Max bolus

David is a growing teenager. He loves to eat big meals and requires very large doses of insulin for his food. He reset his pump with a maximum bolus of 20.0 units so he can take more insulin when he needs to.

BG reminder

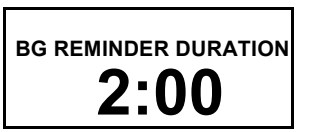
When you deliver a bolus, you may want to check your BG afterwards. The BG Reminder is an optional feature that makes your pump beep or vibrate to remind you to check your BG after a bolus. Your pump is set at the factory with this feature turned off. If the BG Reminder is on, during bolus programming your pump will ask for the amount of time you want to be reminded after your bolus delivers. This time can be from 30 minutes to 5 hours, or NONE. If you do not want to use the BG Reminder at all, set the option to **Off**. *(BG Reminder is not available after an Easy Bolus.)*

1 Go to the BG REMINDER SETUP screen.

Main > Bolus > BG Reminder

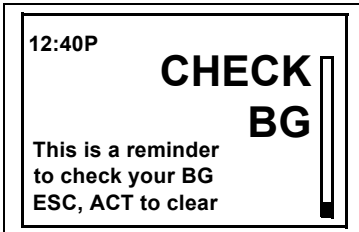
2 Select **On** and press **ACT**. The BG reminder is now enabled. Exit the menus.

The next time you program a bolus, your pump will ask you for the amount of time before you want to be reminded to check your BG.

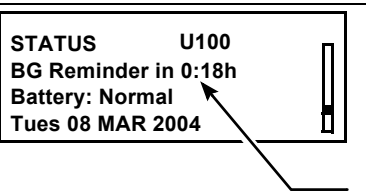


(flashing)

NOTE - If you press ESC when the BG Reminder Duration screen appears, your pump will begin delivering the bolus without setting a reminder. If you program another bolus with a BG Reminder before a previously scheduled BG Reminder goes off, the previous BG Reminder will be cancelled.



When the BG Reminder goes off, your pump will beep or vibrate and the message "CHECK BG" will appear on the screen. Your pump will beep or vibrate periodically until it is cleared (**ESC, ACT**).



When you set a BG Reminder after a bolus, the STATUS screen will show the amount of time remaining before the reminder will go off. Here, the STATUS screen indicates BG Reminder will go off in 18 minutes.

Basal

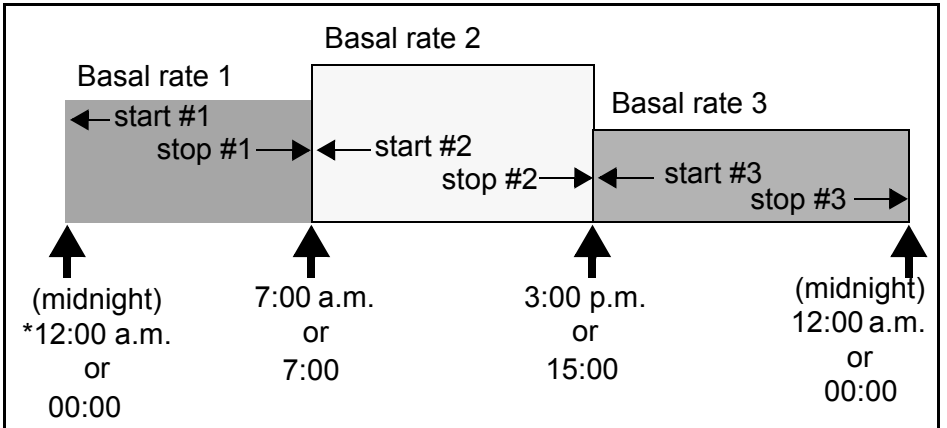
Basal insulin is required to maintain your target glucose values when you are not eating. Your healthcare professional will calculate this rate for you. Your basal insulin should account for approximately one half of the body's total daily insulin requirements. Your pump mimics your pancreas by delivering insulin continuously over 24-hours.

You can set your insulin pump to change rates during the day to match your needs. Your needs depend on your lifestyle and insulin requirements. Some people only use one rate throughout the day, while others find they need more. Your basal rates are made up of insulin deliveries that have start and stop times. Once set, these rates make up your 24-hour basal pattern and are repeated daily.

Start and stop times

When you set your basal rate(s) in the BASAL MENU, your pump prompts you to set the start time for each basal delivery. The stop time is the time that one basal rate stops and the next basal rate starts (see figure).

It is recommended that you record your basal rates on paper. The Quick Reference card is provided with your pump for this purpose. For best results, setting or changing your basal rate(s) should be discussed with your healthcare professional.



- The start time of one basal rate is the stop time of the previous rate. This gives you continuous basal insulin through a 24-hour period.
- You cannot set a start time for one basal rate to overlap the next. basal rate. The addition of a new basal rate will erase any basal rates that follow.

** For Basal Rate 1, the start time cannot be changed (only the rate can be changed). Basal Rate 1 always starts at 12 a.m. or 00:00, depending on the time format selected.*

Your basal settings

You must program your basal settings before you can deliver basal insulin. Keep a written record of your basal settings.

It is recommended that you set your basal rates with the assistance of your healthcare professional.

If you plan to take off your pump for an extended period of time, i.e. more than a day, set the basal rate to 0.0U/H. This will ensure that the insulin delivery records in your pump are accurate. Refer to the section, “If you remove your pump” in chapter 2 for more information.

Basal programming and delivery

To set your basal rates, do these steps:

NOTE - You cannot make changes to your basal rate settings while a Percent (%) temp basal is active.

1 Go to the BASAL MENU.

Main > Basal

2 Select **Set/Edit Basal** and press **ACT**.

3 The SET BASAL RATE 1 screen will appear. Enter your first basal rate amount and press **ACT**.

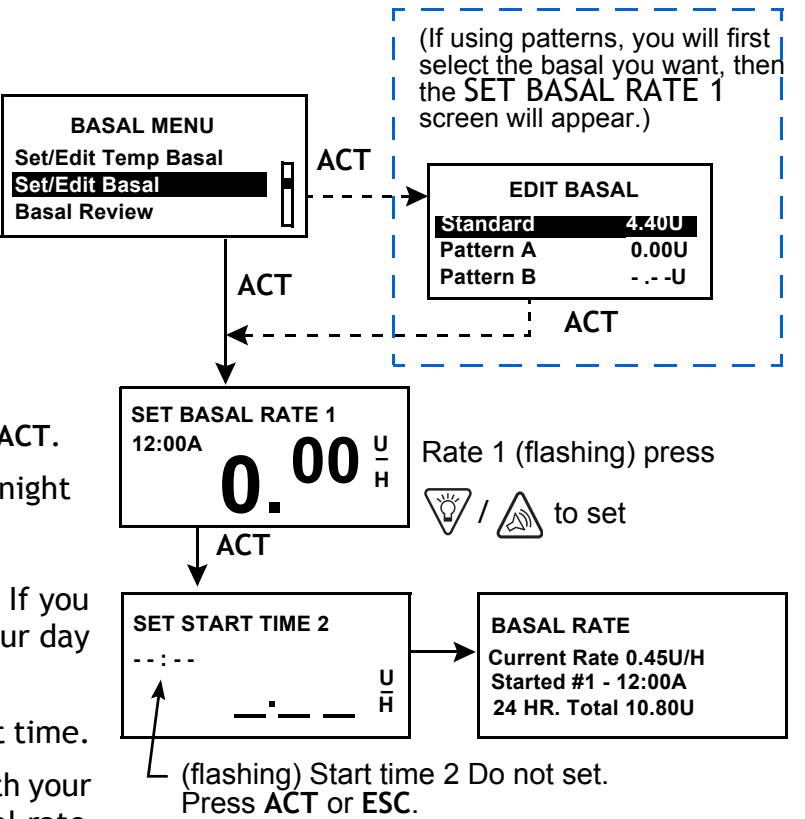
4 The start time for your first basal rate is midnight (12:00A) and cannot be changed.

5 The screen will change to SET START TIME 2. If you only need one basal rate for the entire 24-hour day (12:00A to 12:00A), do these steps:

a. Press **ACT** or **ESC** without setting a start time.

b. The BASAL RATE screen will appear with your basal rate information. Your daily basal rate is now programmed.

c. Exit the menus.



If you need to program more than one basal rate for the day, do these steps:

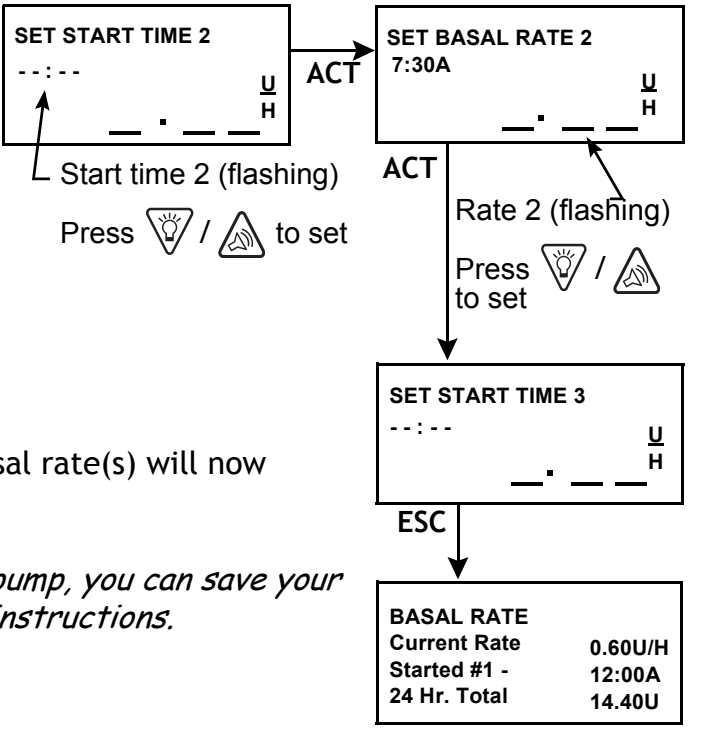
a. In the SET START TIME 2 screen, enter the start time for the next rate and press **ACT**.

b. The SET BASAL RATE 2 screen will appear. Enter the rate and press **ACT**.

c. Repeat steps **a** and **b** for each additional basal rate. Each rate will have a different number (i.e. Basal Rate 1, Rate 2, Rate 3, etc.).

d. After you program your last basal rate, press **ESC**.

e. The BASAL RATE screen will appear. Your basal rate(s) will now deliver as programmed. Exit the menus.



NOTE - When you have finished programming your pump, you can save your settings. Refer to "User settings" on page 117 for instructions.

WARNING: Make sure you are NOT connected to your pump while practicing.

Practice: Basal programming

Make sure you are NOT connected to your pump while practicing.

Set a basal rate of 0.5 unit per hour.

Check here if you were able to set the basal rate: ☐

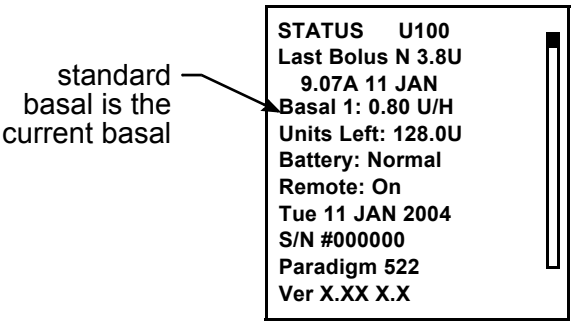
What is the total basal insulin for 24-hours? _____ (answer: 12 units)

Basal review

Temporary basal information is only available in the STATUS screen.

Current basal delivery

The STATUS screen shows your current basal information.

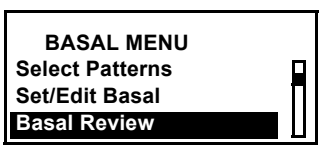


Daily basal rate(s)

The BASAL REVIEW screen shows your daily basal rates programmed for delivery from midnight to midnight (12:00A to 12:00A). Compare your daily insulin deliveries to your blood glucose records to help you and your healthcare professional identify your optimal daily insulin rate(s).

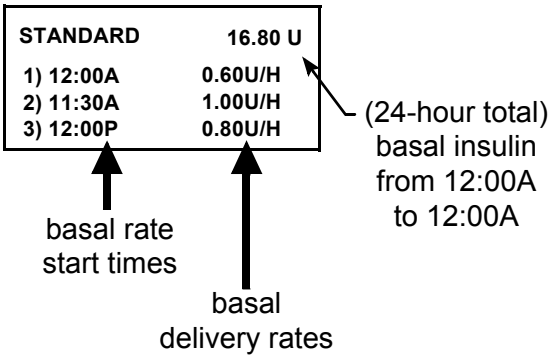
1 Go to the BASAL MENU. Select **Basal Review** and press ACT.

Main > Basal > Basal Review



2 **If you do not use patterns:**

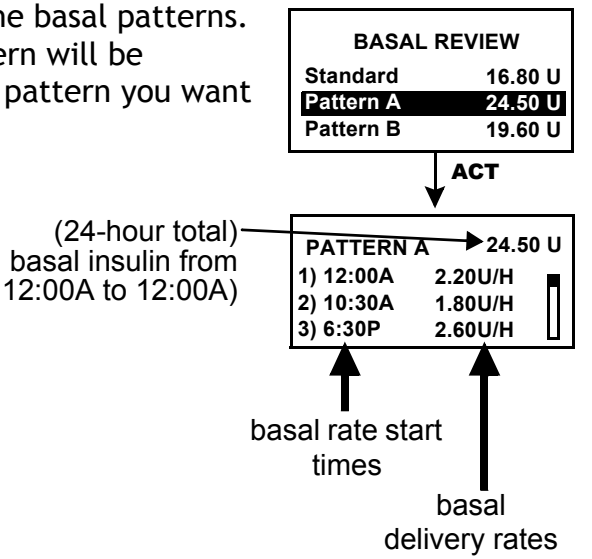
The delivery details for your standard basal will appear.



If you use patterns:

The screen will show the basal patterns. The current basal pattern will be highlighted. Select the pattern you want to view. Press **ACT**.

The start time and units for each delivery rate in that pattern will appear.



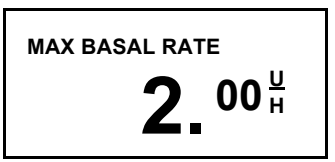
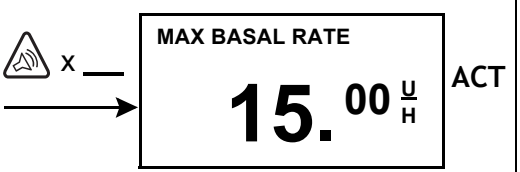
3 Exit the menus when you are done.

Max basal rate

Maximum (Max) basal rate is a safety limit for the amount of basal insulin that is able to be delivered per hour. This maximum rate will apply to every basal rate that is set, including a temporary basal. It is important to discuss what your Max basal rate should be with your healthcare professional.

Once your basal rates have been set, you CANNOT set a maximum basal that is less than any of the programmed basal rates or program a basal rate that is greater than your maximum basal rate—this includes patterns and temporary basal rates. Your pump is sent from the factory with the maximum basal set to two (2.0) units per hour.

To set your max basal rate, do these steps:

1 Go to the MAX BASAL RATE screen. The Max basal rate will be flashing. **Main > Basal > Max Basal Rate**  (flashing)	2 Change the rate and press **ACT**.  	3 Your maximum basal rate is now set. Exit the menus.

Example 1: Max Basal
Helen has a very low insulin requirement. Her highest basal rate is only 0.4 units per hour. As a safety measure, Helen's healthcare professional set her pump with a Max basal rate of 1.0 units per hour.

Example 2: Max Basal
Rusty needs large amounts of insulin to control his blood glucose levels. His new pump was delivered from the factory with a Maximum Basal Rate of 2.0 units per hour, but he needs 2.8 units per hour in the early morning. Rusty will reprogram his Max basal rate to 3.0 units per hour to accommodate his needs.

Stopping your pump

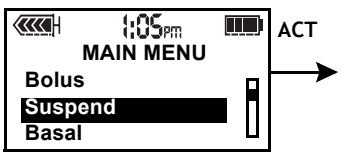
You can stop your pump with the Suspend function. Suspend stops all insulin delivery including the current basal and any bolus or prime deliveries that are in progress. While suspended, your pump will not deliver insulin until you Resume your pump. When basal is resumed, the pump is taken out of the Suspend mode.

The pump will beep or vibrate about every 15 minutes on the hour to remind you that it is not delivering insulin. Example: You suspend your pump at 11:20AM. The pump will beep/vibrate at 11:30AM, 11:45AM, 12:00PM, and so on until you resume your pump (basal resumes).

NOTE - When suspended, your pump is in Attention mode (a solid circle). When in Suspend, you can only resume your basal or view the STATUS screen. No other functions are available.

Do these steps to suspend your pump:

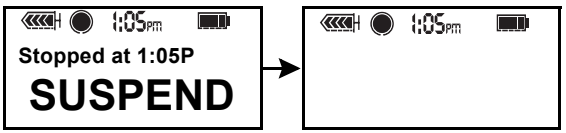
1 Select **Suspend** from the MAIN MENU, and press **ACT**.



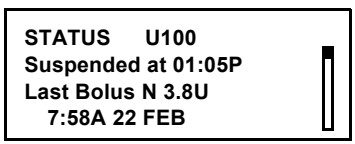
2 **SUSPEND** will flash. Press **ACT** to stop your pump.

(flashing)

3 The screen will show that the pump is suspended and the time that it stopped. After a few minutes, the pump will default to the HOME screen with a solid circle.



NOTE - Press ESC once (three times if the Sensor feature is ON) to view the STATUS screen and verify that your pump is suspended.



Example:
Suspend function

1. Josh has been on a Medtronic MiniMed pump for several months. He is very active in soccer and basketball. He and his healthcare professional have determined that he does not need his basal insulin during his games, and that he is able to take the pump off for these short amounts of time. Josh uses the "Suspend" feature on his pump to stop the basal insulin during the time that he is disconnected from his pump. He will "Resume" delivery when he reconnects the pump.
2. Helen is ready to eat her lunch. She has just programmed her pump to deliver a meal bolus when the phone rings. Helen wants to talk on the phone and not eat her lunch right away. She knows that if she lets the bolus continue and she does not eat her lunch soon, she may be at risk for low blood glucose. Helen "Suspends" delivery of her pump to stop the bolus, but then "Resumes" delivery to restart her basal insulin. When she is off the phone and ready to eat, she checks her STATUS screen to see how much insulin she received from the partially delivered bolus before she suspended her pump. She will reprogram a new bolus for the remainder of her bolus amount.

WARNING: Make sure you are NOT connected to your pump while practicing.

Practice:
Suspend function

1. Make sure you are **NOT** connected to your pump while practicing.

   Program your pump to deliver a Normal bolus of 3.0 units. Once the bolus begins, stop the bolus by suspending your pump.

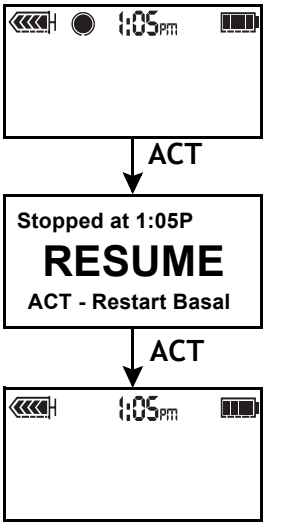
   Remember, when you stop the bolus delivery with "Suspend," ALL insulin delivery will stop.
2. Now, "Resume" delivery, so that your basal insulin will continue.
3. Check the STATUS screen.
4. How much insulin did the bolus deliver before you Suspended delivery? _____.
5. If you wanted to take the rest of the bolus later, how much would you take to equal 3.0 units? _____.

Resume pump delivery

When the pump is suspended, it defaults to the HOME screen with a solid circle.

Do these steps to resume your pump and basal delivery:

1. From any screen, press **ACT** until the RESUME screen appears. Press **ACT** again.
2. Your pump will beep once, then the HOME screen will appear (with no circle).



NOTE - A bolus or fixed prime that was stopped by Suspend will NOT restart when you resume your pump. You must reprogram and activate it to finish delivery.

WARNING: Make sure you are NOT connected to your pump while practicing.

Practice:
Resume basal delivery after a suspend

Make sure you are **NOT** connected to your pump while practicing.

Give a 3.0 unit bolus now. While it is delivering, suspend the bolus.

Check here if you were able to suspend the bolus. ☐

Now restart the pump.

Check here if you were able to restart the pump. ☐

Prepare your pump for use

Before continuing with the steps in this chapter, we recommend that you watch your pump training CD-ROM and complete your pump start training.

When you are done practicing and are ready to use your pump with insulin, you must:

1. Make sure the time and date are correct on your pump
2. Program your settings as instructed by your healthcare professional
3. Install the reservoir, and
4. Prime the infusion set

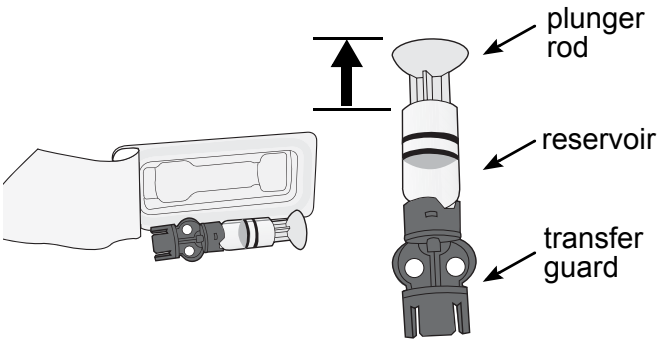
You will need these items:

- Pump
- Insulin
- Paradigm reservoir and user guide
- Paradigm infusion set and user guide

Filling the reservoir

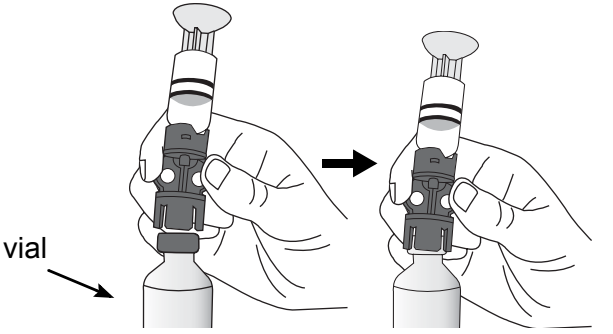
WARNING: When filling the reservoir, take care to remove air bubbles.

1 Remove reservoir from package. Make sure plunger rod is fully extended.

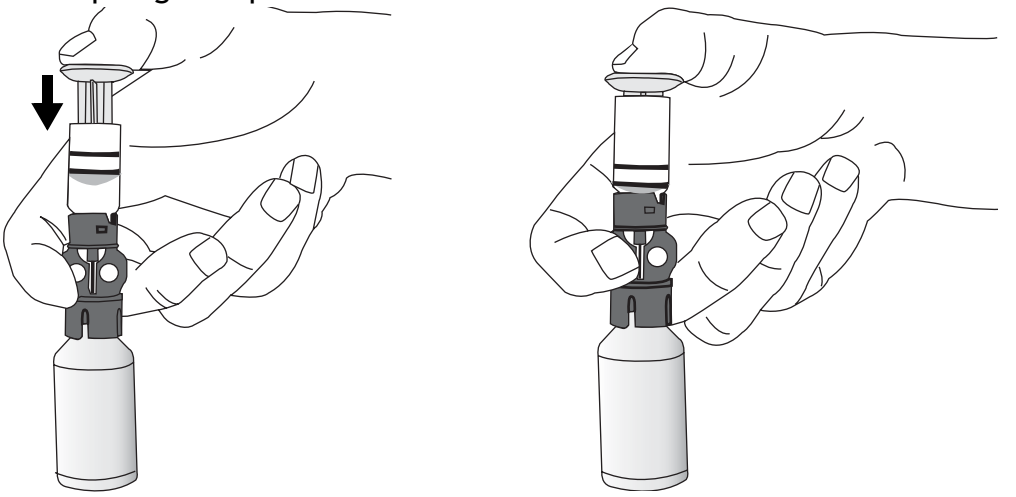


2 Swab vial with alcohol.

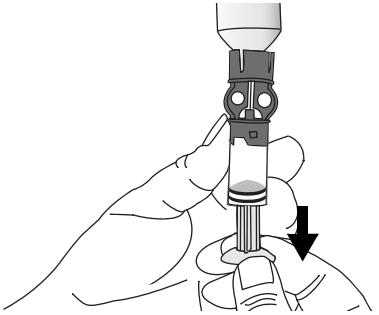
3 Making sure you do not push down on the plunger, press the transfer guard onto the vial.



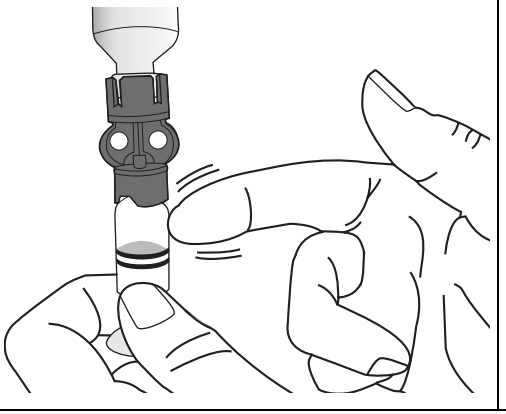
4 Push down on the plunger to pressurize the vial.



5 While still holding the plunger rod, flip the vial over so the vial is up, slowly pull down on the plunger to fill the reservoir.

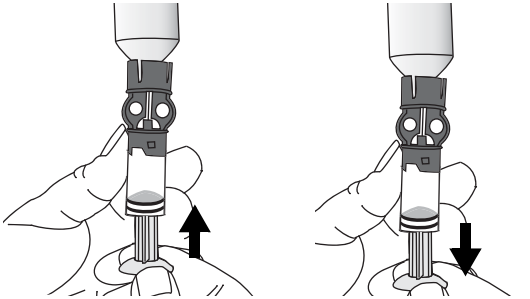


6 Gently tap the side of the reservoir to make any air bubbles rise to the top of the reservoir.

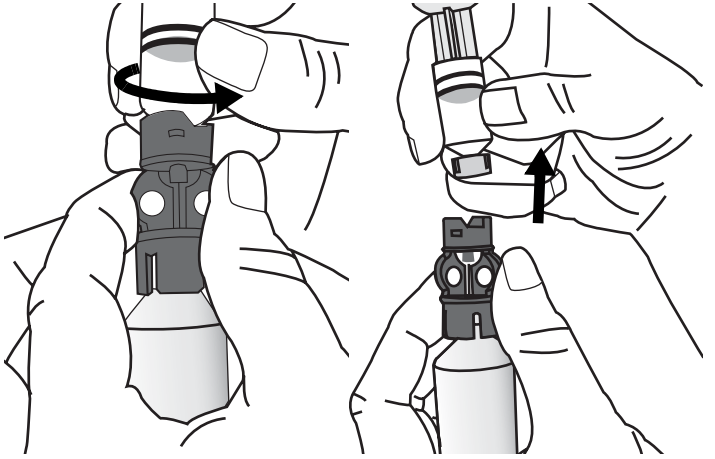


7 Slowly push up on the plunger just enough to remove any air bubbles from the reservoir.

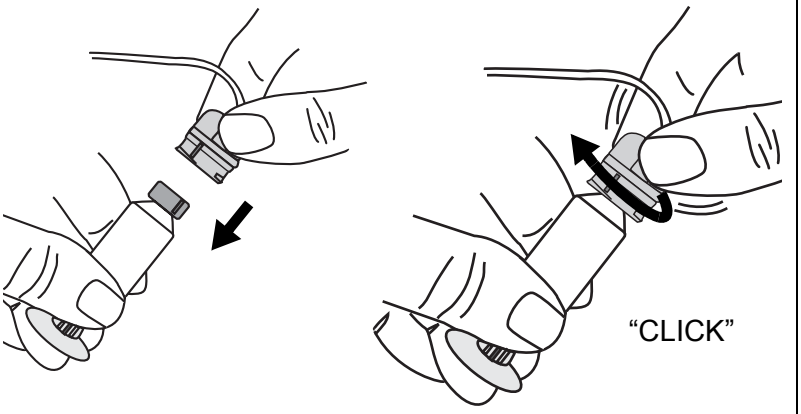
8 Slowly pull down on the plunger to fill the reservoir to the number of units desired.

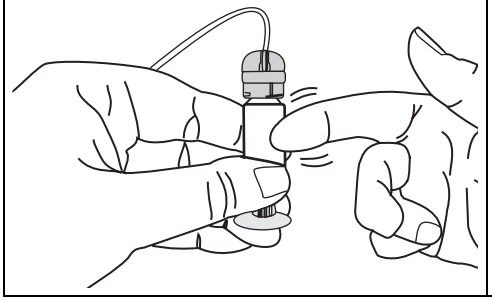
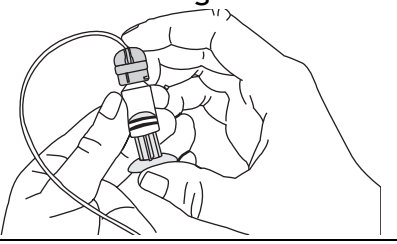
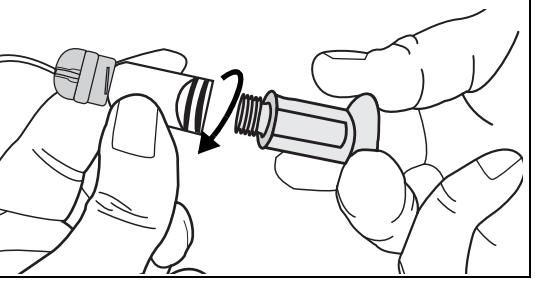


9 With the vial down, hold the transfer guard. Turn the reservoir counter-clockwise then pull straight up to remove it from the transfer guard.



10 Place the tubing connector onto the reservoir. Turn the connector clockwise pressing gently against the reservoir until you feel it slide in. Push in and continue turning until the reservoir and the connector lock with a click.

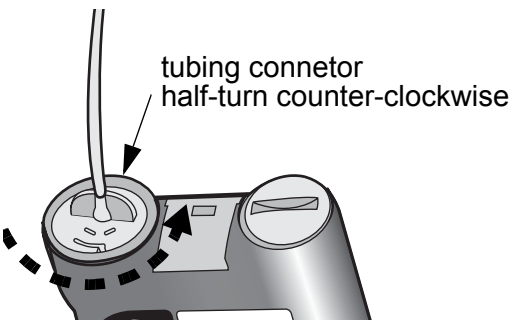


11 Tap the side of the reservoir to remove any air bubbles. 	12 To purge air bubbles that have risen to the top of the reservoir, push up on the plunger until you see insulin in the tubing. 	13 Without pulling, turn the plunger rod counter-clockwise to remove it from the reservoir. 

Changing your infusion set

Removing the reservoir

Each time you remove and replace a reservoir in your pump, you have to rewind and prime your pump. Priming requires insulin.

1	Remove the entire infusion set from your body.
2	If attached, remove the activity guard.
3	Turn the tubing connector half-turn counter clockwise, then pull the reservoir and connector out from the pump. 
4	Safely dispose of the used reservoir and infusion set items in a sharp's container.
5	You must now rewind your pump as described in the next section.

Rewinding your pump

Before you continue, make sure the pump is **NOT** connected to your body.

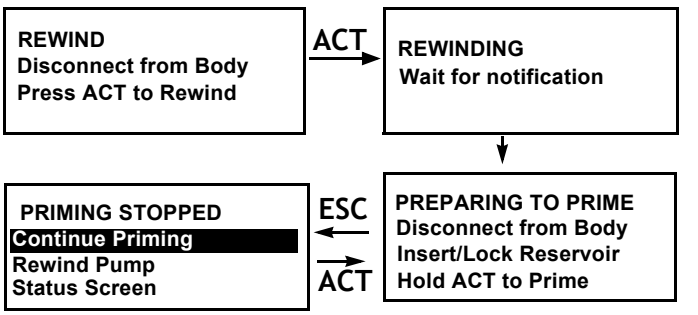
WARNING: Make sure the infusion set is disconnected from your body before you rewind or prime the pump. Never insert the reservoir into the pump while the tubing is connected to your body. Doing so could result in an accidental infusion of insulin.

1. If you removed your reservoir and are replacing it, go to the REWIND screen.

   Main > Prime > Rewind

2. In the REWIND screen, press **ACT** to start the rewind process. The REWINDING screen will appear while the pump rewinds.

3. After the pump rewinds the PREPARING TO PRIME screen will appear.



NOTE - If you press ESC, the PRIMING STOPPED screen displays. This screen guides you back to the priming screens. Once you start a rewind, you cannot cancel it.

If you **are practicing**, do these steps:

a. Do **NOT** insert the reservoir in your pump. Make sure the shipping cap is installed in the reservoir compartment.

b. Continue with the manual prime instructions described in the “Manual prime” section on page 47.

If you are **not practicing**, continue to the next section, “Inserting the reservoir in your pump.”

Inserting the reservoir in your pump

If your reservoir is already inserted in your pump, continue to the next section, “Manual prime.”

You must do these steps in the order described. Your pump screen will show instructions to help you with these steps. **If you are practicing, do NOT insert the reservoir in your pump.**

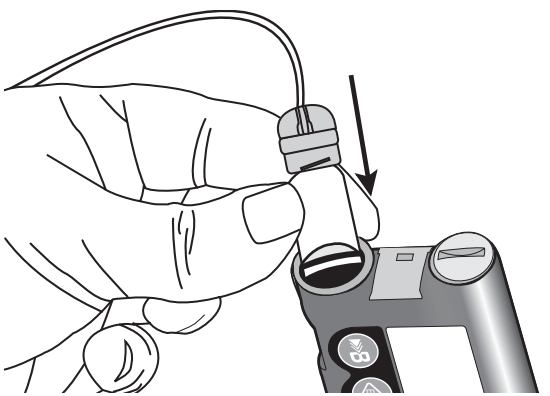
CAUTION: You must rewind your pump before installing a new reservoir. As part of the pump’s function, it measures the reservoir volume. To ensure correct volume measurements, your pump has been designed to require a rewind before you insert your reservoir.

1 If you are using the pump for the first time, remove the shipping cap from the reservoir compartment.

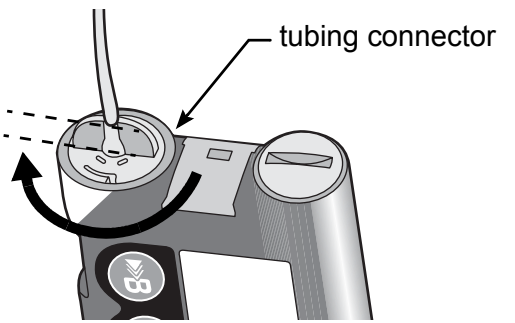
WARNING: Do not insert the reservoir in the pump if you did not rewind. Doing so could result in inaccurate insulin delivery.

Never insert the reservoir into the pump while the tubing is connected to your body. Doing so could result in an accidental infusion of insulin.

2 Insert the reservoir into the top of the pump case.



3 Turn the tubing connector approximately half-turn clockwise until the connector is seated. The tubing connector should be aligned horizontally with the pump case as shown here.



4 Attach the activity guard, if desired.

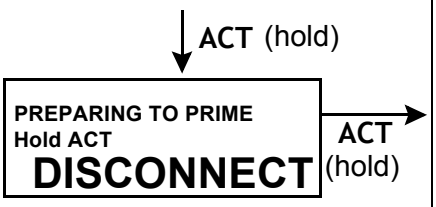
5 You must now do a manual prime as described in the next section.

Manual prime

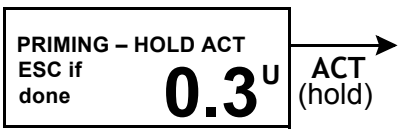
Manual prime fills the infusion set tubing with insulin before you attach it to the infusion site. Manual prime is only available after you rewind your pump.

WARNING: Make sure the infusion set is disconnected from your body before you press ACT to prime the pump. Never insert the reservoir into the pump while the tubing is connected to your body. Doing so could result in an accidental infusion of insulin.

1 After you rewind your pump, the PREPARING TO PRIME screen will appear.



2 Press and hold **ACT** to start the prime. The pump will beep 6 times indicating the prime has started.

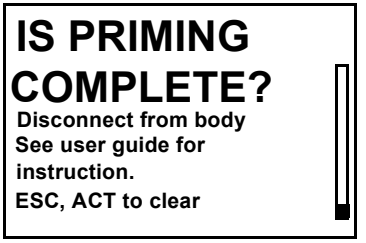


3 While you hold **ACT**, the pump will beep again 6 times as the screen begins counting the prime units being used.

4 Continue to hold **ACT** until insulin droplets form on the tip of the infusion set needle, then release. Be sure no bubbles are in the tubing.

WARNING: If the PRIMING - HOLD ACT screen does not display, do NOT continue. Do NOT insert the infusion set into your body. Please contact the 24 Hour HelpLine for assistance.

Take care to remove any air bubbles during the manual prime.



If your manual prime uses more than 30U insulin, the pump will ask you, "is priming complete?" If you get this message, do these steps:

a. **Make sure you are not connected to the pump.**

b. Read the message on the screen, then press **ESC**, **ACT** to clear.

c. If your manual prime is complete (you see droplets on the tip of the infusion set needle), press **ESC** and continue to step **5**. If your manual prime is not complete, press and hold **ACT** until priming is complete then continue to step **5**.

5 Press **ESC**. Your manual prime is complete.

6 You can now insert the infusion set into your body as described in the next section.

Insert the infusion set

WARNING: **While the infusion set is connected to your body, do not unscrew and retighten the tubing connector on the reservoir.**

After you complete all of the following, you will be ready to insert the infusion set into your body:

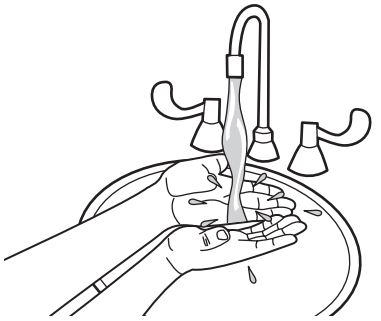
- Fill your reservoir
- Rewind your pump
- Insert the reservoir into pump
- Prime the pump (fill the infusion set with insulin)

It is important that you change your infusion set every 2-3 days. Medtronic MiniMed offers a number of different infusion sets for your pump. Instructions for the Quick-set® begin on the next page as an example. Always refer to the instructions that shipped with your infusion set. After your infusion set is inserted, continue to the section "Fixed prime."

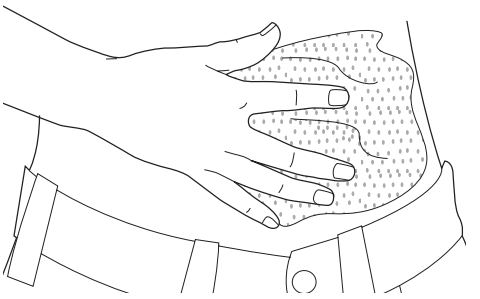
Quick-set infusion set (with Quick-serter®)

Always refer to the instructions that shipped with your infusion set.

1 Wash your hands.



2 Clean and dry the infusion site.



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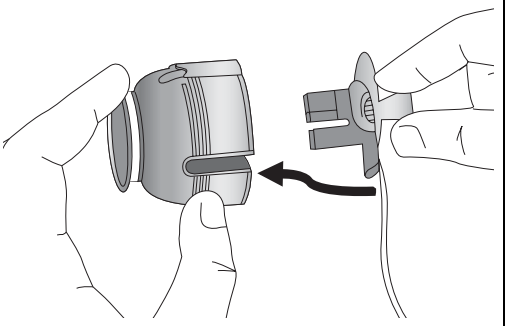

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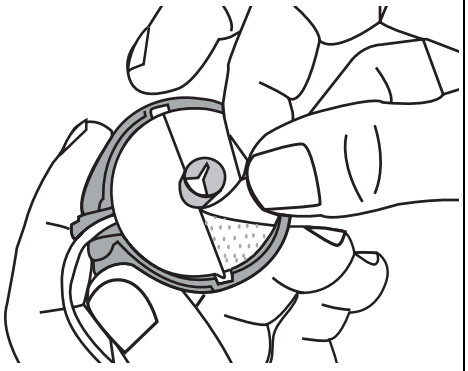

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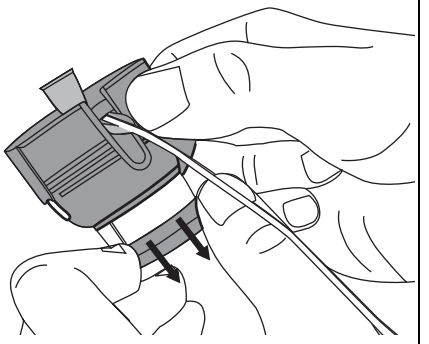

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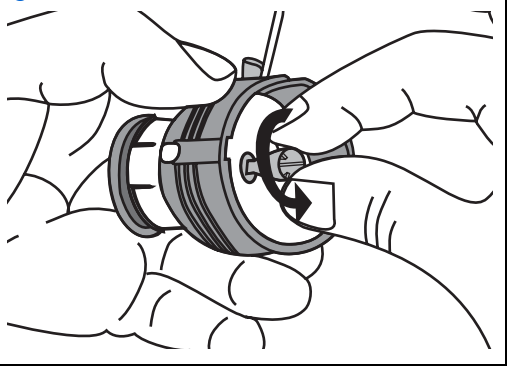

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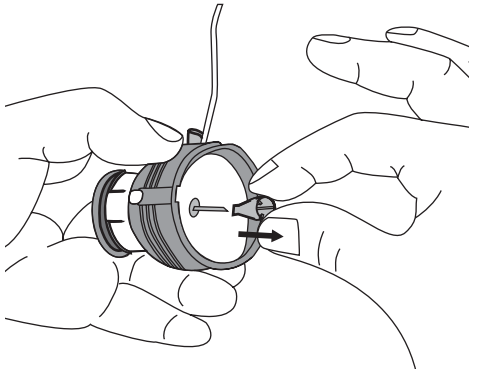

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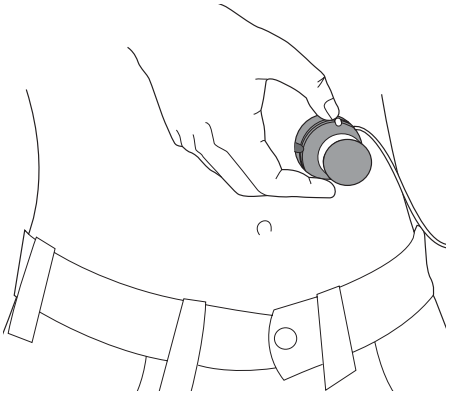

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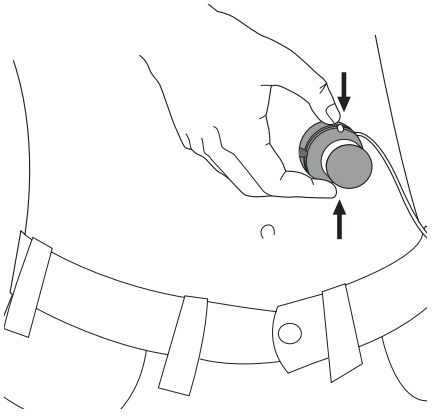
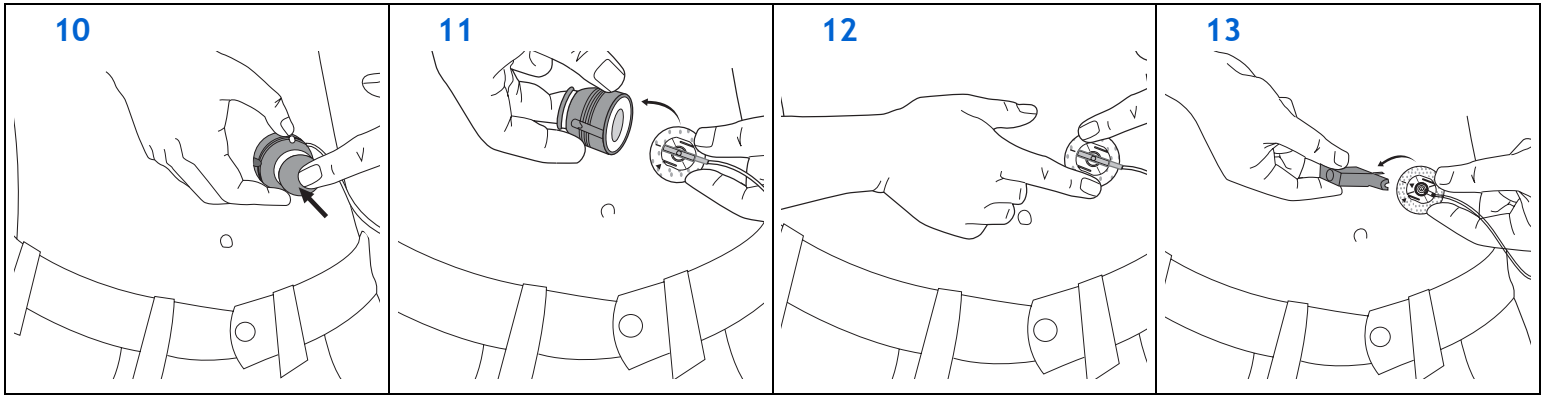
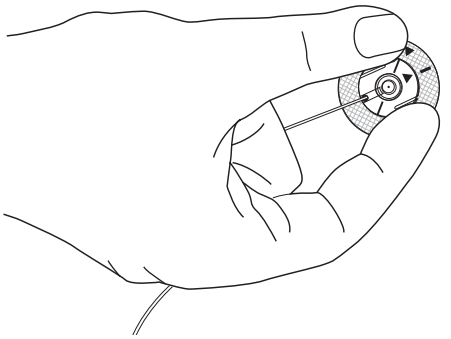
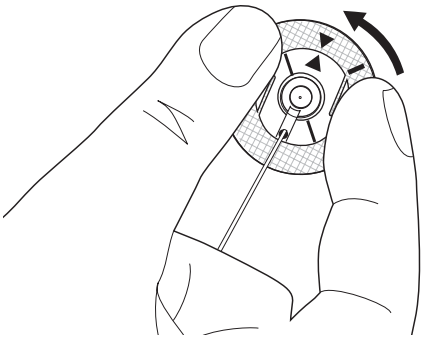
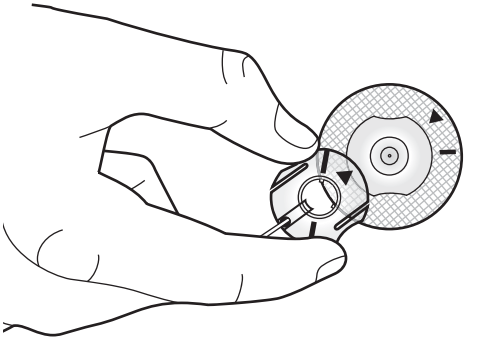




Disconnecting Quick-set

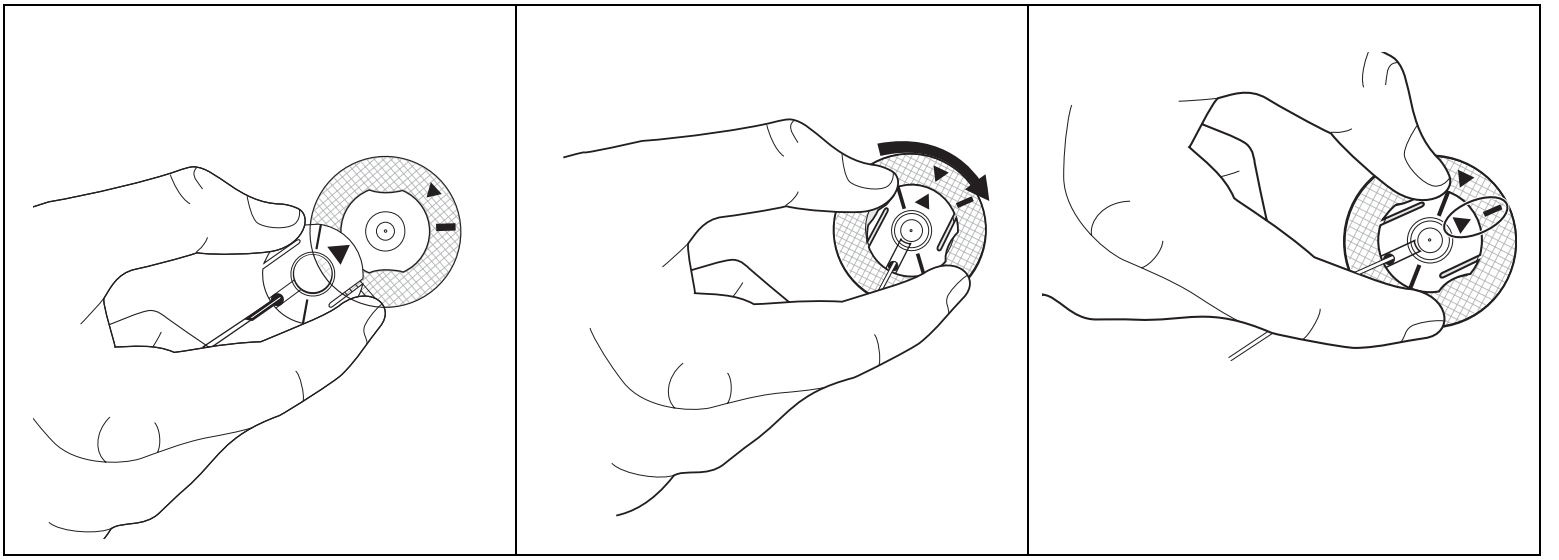
The Quick-set allows you the freedom to temporarily disconnect from your pump without removing the infusion set from your body.

Hold the side grips of the connector part with your fingers.	Twist the connector counter-clockwise.	Remove the connector from the site.
		

Reconnecting Quick-set

A fixed prime is used before reconnecting the Quick-set to ensure that all air is removed from the tubing. Refer to the section, “Fixed prime” on the next page for instructions.

Place the connector part (flat-side facing down) on the infusion set until it is fully seated. Do **not** grip the connector part by the flat side-grips.



Fixed prime

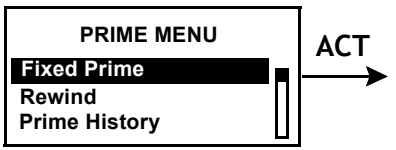
A fixed prime fills the soft cannula with insulin and is required after the infusion set is inserted into your body and the introducer needle is pulled out. Additionally, a fixed prime is required prior to reconnecting the tubing to the infusion set to ensure that all air is removed from the tubing.

NOTE - Prime amounts depend on the type of infusion set you are using. Refer to your infusion set instructions for your fixed prime amount.

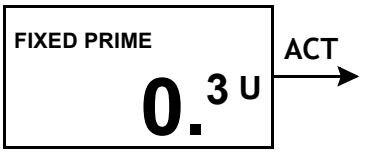
1 Go to the PRIME MENU.

Main > Prime

2 Select **Fixed Prime** and press **ACT**.



3 In the FIXED PRIME screen, enter the amount for your type of infusion set, then press **ACT**.



4 Once the prime begins, the PRIME DELIVERY screen will count up the units as they are delivered. A "beep" will sound when priming is complete.

Prime history

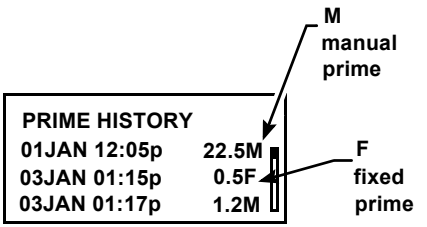
Do these steps to see a list of the delivered primes.

1 Go to the PRIME MENU.

Main > Prime

2 Select **Prime History** and press **ACT**.

3 The PRIME HISTORY screen will appear.



4 Scroll through the list of prime deliveries. "F" at the end of the text line indicates a fixed prime.

"M" indicates a manual prime. Exit the menus.

Record keeping for diabetes management

Now that you are using the pump with insulin, we will be asking you to test your blood glucose regularly. The information from your blood glucose journal is your healthcare professional's only method of making adjustments in your pump settings. It is important to test often and write down your blood glucose readings, the food you eat, any exercise you perform and any other notes to explain your blood glucose results.

You must test at the recommended times and any other time that you feel your blood glucose is high or low. Be sure to include your meal boluses, correction boluses, the amount of carbohydrate you eat, basal rate and any other information that will be helpful in assisting your healthcare professional in adjusting your pump settings.

It is very important to look at your blood glucose readings as feedback regarding your diabetes management, not as statements about you or your self-worth. Try not to have an emotional reaction to the numbers and do not judge them too harshly. You will soon learn how to modify the numbers easily and precisely through insulin pump therapy.

TEST AT LEAST 4-6 TIMES A DAY.

These are the recommended times to test to determine control:

- Overnight (occasionally, at approximately 2 - 3 AM)
- Pre-breakfast (fasting)
- Post-breakfast (approximately 2 hours after eating)
- Pre-lunch
- Post-lunch (approximately 2 hours after eating)
- Pre-dinner
- Post-dinner (approximately 2 hours after eating)
- Bedtime
- Before driving

Determining your pump settings

Your healthcare professional will use your daily blood glucose journal records to program your pump. It is very important to keep good records during the first weeks after you start on pump therapy. Not only must you record your blood glucose readings, but it will be important to eat regularly scheduled meals and to keep your activity as consistent as possible.

Until you and your healthcare professional determine the pump settings that will work best for you, it is important to eat meals for which it is easy to count the carbohydrates. After your correct basal rate is determined, you will be able to experiment with varied food choices and amounts.

After you and your healthcare professional are satisfied with your initial pump settings, you may begin to experiment with different food choices, meal times and exercise schedules.

Using your daily journal

To use the daily journal that came with your pump, follow these easy steps:

1. Write the day and date in the spaces provided on the top of the page.
2. Find the time of the entry you are making. Test your blood glucose and enter the value in the space labeled “blood glucose.”
3. If you are eating at this time, write the grams of carbohydrates in the space labeled “carbohydrates.”
4. If you are taking a correction and/or meal bolus, record it in the space labeled “meal bolus” and/or “correction bolus.” Even if you have added these together to take one bolus, write the separate amounts in the corresponding spaces.
5. Record your basal rate in the space labeled “basal rate.” If you have more than one rate, be sure to record the rate in the space corresponding to the correct time for each rate.
6. When you exercise, write the minutes in the space labeled “exercise.” If you test your urine ketones, write the result in the space labeled “urine ketones.” Each time you test your ketones, write the result even if it is negative.
7. Record the time you change your infusion set in the space labeled “set change.” This notation will help you to evaluate any changes in your blood glucose readings due to changing your infusion set.
8. Record the food you eat in the “breakfast,” “lunch,” and “dinner” columns.
9. In the “notes” section, write down any information that may explain your blood glucose values or diabetes management decisions. Use this section as you would a personal journal.
10. At the end of the journal, there are blood glucose graphs. To draw your blood glucose graph for the day, find the time you tested and follow the line up until you reach the corresponding blood glucose on the left. Once you find it, mark a dot on the graph that corresponds to the correct time and blood glucose value. At the end of the day, connect the marks and draw your graph. This graph will be helpful in looking at patterns in your blood glucose values from day to day.

Using the Bolus Wizard feature

What is it?

A feature that calculates an estimated bolus:

- To support your food intake

AND/OR

- To correct high blood glucose

Information you need

Food entry

You need to know how many exchanges or grams of carbohydrates you are going to eat. (You need to know what foods contain carbohydrate and understand carbohydrate counting.)

Your blood glucose reading

You need to know your blood glucose, BG, reading. When using the Bolus Wizard feature, the pump can work with a linked meter that may have been included with your pump to automatically receive your BG reading. The section "Meter option" in this chapter has more information. If you are not using this meter, you will manually enter your BG.

Your personal Bolus Wizard feature settings

In addition to your BG reading and/or your food entry, the Bolus Wizard feature uses personal settings that you program into the pump. (For instructions see "How to program the Bolus Wizard feature.")

- Carb units (grams or exchanges)
- Carb (food) ratios(in carbohydrate grams/unit of insulin or insulin units/carb exchanges)
- BG units (mg/dL or mmol/L)
- Insulin sensitivity
- Target blood glucose range
- Active insulin time (hours)

Get this information from your healthcare professional, and, for best results, talk to your healthcare professional before making any changes. Keep a record of your settings in the "Bolus Wizard feature settings" table on this page and the next page.

Bolus Wizard feature settings

Information	Setting	
Carb units:	_____ grams or _____exchanges	
Carb ratios: Bolus Wizard feature uses this for your food bolus calculations. **If you count carbs:** this ratio is the amount of carbohydrate grams covered by one (1) unit of insulin. **range:3 – 150 grams/unit** **If you count exchanges:** this ratio is the amount of insulin you need to cover one (carb) exchange. **range:0.1 – 5.0 units/exchanges** ***NOTE – Your carb ratios may vary throughout the day. Your pump allows you to program up to eight (8) different carb ratios.***		**start time**
	#1: _____	**(midnight)**
	#2: _____	
	#3: _____	
	(additional settings, if needed)	
	#4: _____	
	#5: _____	
	#6: _____	
	#7: _____	
	#8: _____	
BG units: (how you measure your BG)	_____ mg/dL or _____ mmol/L	
Insulin sensitivity: This ratio is used for your correction bolus calculations. This ratio is the BG units reduced by 1.0 units of insulin. range:10 – 400 mg/dL or 0.5 - 22.2 mmol/L ***NOTE – Your insulin sensitivity may vary throughout the day. Your pump allows you to program up to eight (8) different insulin sensitivities.***	**BG units reduced / 1 unit of insulin**	**start time**
	#1: _____	**(midnight)**
	#2: _____	
	#3: _____	
	(additional settings, if needed)	
	#4: _____	
	#5: _____	
	#6: _____	

Bolus Wizard feature settings

Information	Setting	
BG target range: If your current BG is above the BG Target Range, the Bolus Wizard feature will calculate a correction dose. If your current BG is below the BG Target Range, the Bolus Wizard feature will calculate a negative correction and subtract it from your food bolus. Range: 60 – 250 mg/dL or 3.9 - 13.9 mmol/L ***NOTE -*** *Your pump will allow you to program up to eight (8) different BG target ranges.*	**#1:** ____-____	**(midnight)**
	#2: ____-____	
	#3: ____-____	
	(additional settings, if needed)	
	#4: ____-____	
	#5: ____-____	
	#6: ____-____	
	#7: ____-____	
	#8: ____-____	
Active insulin time: The Bolus Wizard feature uses this time to calculate the active insulin in your system (see “About active insulin” on page 60). Use your healthcare professional’s recommendation for the active insulin time that best represents the insulin type you use and your physiological insulin absorption rate. Range: 2 – 8 hours	**Number of Hours:** _____	

How the Bolus Wizard feature works

1 If you want your current blood glucose to be factored in, enter your BG reading.

- Automatically from your linked meter (refer to the section “Meter option”)

or

- Manually by selecting .

2 If you are going to eat, enter your food amount in carbs or exchanges.

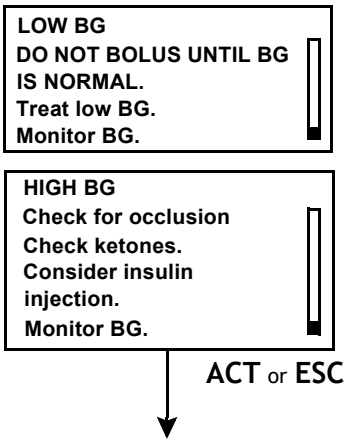
3 The Bolus Wizard feature will calculate a bolus for you. An ESTIMATE DETAILS screen will appear with your estimated total bolus amount.

NOTE - If you are using a linked meter, you can program your pump to automatically receive your meter readings. The Bolus Wizard feature will use the BG reading when calculating your bolus amount. Refer to the section "Meter option" in this chapter for instructions.

More about the Bolus Wizard feature

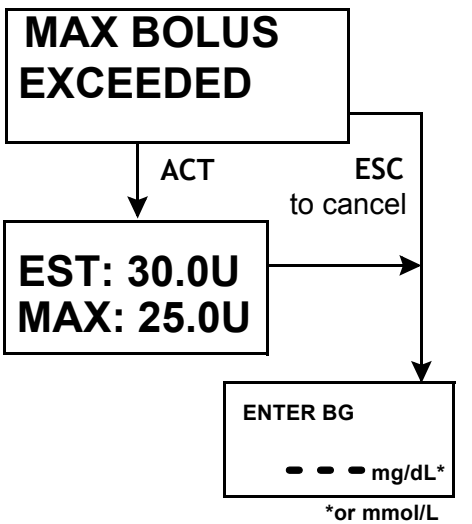
About high or low BG levels

If your BG is less than 70 mg/dL (3.9 mmol/L) or more than 250 mg/dL (13.9 mmol/L), the Bolus Wizard feature screen will notify you and give instructions. Read the instructions and press **ACT** or **ESC** to clear the message. You can continue programming and deliver your bolus.



About maximum delivery

Bolus Wizard feature will not deliver more than the limit set for your maximum bolus. If the Bolus Wizard feature calculates a bolus amount that is larger than your max bolus limit setting, the message, “MAX BOLUS EXCEEDED” will appear. If this happens, do these steps:



1. In the MAX BOLUS EXCEEDED screen, press **ACT** to continue your bolus programming. The estimate and maximum bolus amounts will appear for your information. Continue to step 2.

   If you do not want to continue, press **ESC** to cancel and the screen will return to the ENTER BG screen.

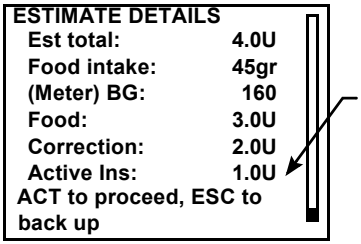
2. In the EST: MAX screen, press **ACT** again to continue your bolus programming. If desired, press **ESC** to cancel and the screen will return to the ENTER BG screen.

NOTE - Your pump will only deliver up to your maximum bolus limit setting. For example: The Bolus Wizard feature estimate is 30 units and your max bolus limit is 25 units. When you press ACT, your pump will only deliver 25 units, and will notify you that your bolus estimate exceeds your max bolus.

About active insulin

Active insulin is the bolus insulin that has already been delivered to your body, but has not yet been used. The Bolus Wizard feature considers your active insulin time setting in determining any active insulin still in your body from prior boluses. This may help prevent hypoglycemia caused by over correcting for high blood glucose.

The Bolus Wizard feature automatically tracks active insulin for you, based on your active insulin time, and subtracts the appropriate amount when your BG is above target. The details will appear in the ESTIMATE DETAILS screen during the bolus programming steps.


ESTIMATE DETAILS
Est total: 4.0U
Food intake: 45gr
(Meter) BG: 160
Food: 3.0U
Correction: 2.0U
Active Ins: 1.0U
ACT to proceed, ESC to back up
If there is no BG entry, Active Insulin displays as "N/A"
(values shown are for example only)

Your Paradigm pump is shipped from the factory with an active insulin time setting of six hours, which most closely matches the published scientific data. If your healthcare professional prescribes a different time for you, the active insulin time setting can be adjusted in one-hour increments from two to eight hours.

You can always choose to override the suggested Bolus Wizard feature estimate and manually enter a different amount.

For more details about active insulin, see "Bolus Wizard feature specifications" on page 141.

CAUTION: **The Bolus Wizard feature cannot correctly determine the active insulin in your system after you have taken a manual injection of insulin. The manual injection will not be recorded by the pump so your active insulin amount will be read as too little. You must generally wait at least 8 hours after an injection before relying on your Bolus Wizard feature to calculate your active insulin. But, the length of time you need to wait depends on your active insulin setting in the Bolus Wizard feature. See "About active insulin" on page 60 for more information.**

How to program the Bolus Wizard feature

You need your personal settings from the Bolus Wizard feature settings table to setup the Bolus Wizard feature. Your Bolus Wizard feature settings are programmed in the EDIT SETTINGS screen.

Main > Bolus > Bolus Wizard Setup > Edit Settings

Once the settings are programmed, you do not have to program them again unless the values change. After you program one setting, the screen will automatically go to the next required setting. After you program all your settings, review them as described in this section to make sure they are set correctly.

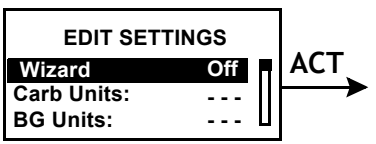
Instructions for programming the Bolus Wizard feature settings are in the next paragraphs. Program your settings in the order described to make sure you program all the settings.

Bolus Wizard feature On/Off

1 Go to the EDIT SETTINGS screen.

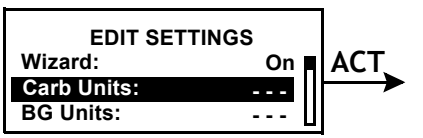
Bolus > Bolus Wizard Setup > Edit Settings

2 Select **Wizard** and press ACT.



3 Select **On** or **Off** and press ACT.

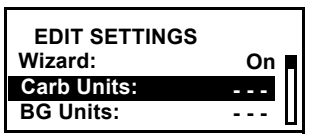
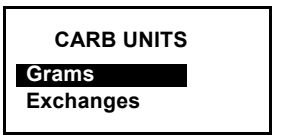
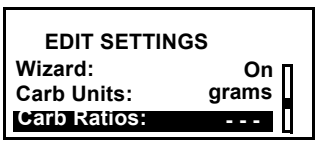
4 The EDIT SETTINGS screen will appear. Press ACT to program your settings.



Carb units

The carb unit setting lets the pump know which way to count your carbohydrates (grams or exchanges). Refer to the "Bolus Wizard feature settings" table for your carb ratio settings.

NOTE - Any time you make changes to the carb units, you must also reprogram the carb ratios.

1 In the EDIT SETTINGS screen, select **Carb Units** and press **ACT**.	2 Select **Grams** or **Exchanges** and press **ACT**.	3 The screen will return to the EDIT SETTINGS screen so you can set your carb ratios next.
		

Carb/Exch ratios

If you use grams as your carb units: Carb ratio is the number of carb grams that are covered by one unit of insulin.

If you use exchanges as your carb units: Carb ratio is the number of insulin units that are needed to cover one (1.0) carb exchange.

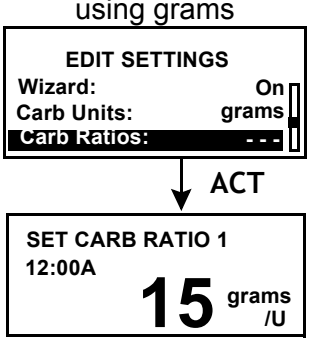
Because this ratio may vary throughout the day, your pump allows you to set up to eight (8) settings. Your healthcare professional may only have you program one or two carb ratios when you first start using the Bolus Wizard feature.

4 In the EDIT SETTINGS screen, select Carb Ratios and press ACT.

5 The screen will change to SET CARB RATIO 1 (if you are using grams) or SET EXCH RATIO 1 (if using exchanges).

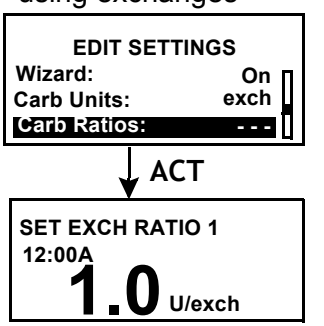
Set your first ratio and press **ACT**. (The start time for your first ratio is midnight (12:00A) and cannot be changed.)

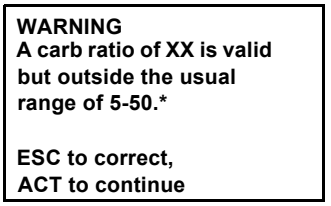
using grams



(flashing) set, then press **ACT**

using exchanges



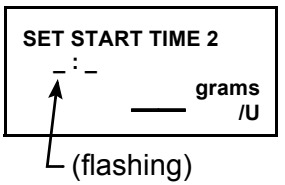


NOTE - Carb ratio values are normally between 5-50 grams/u or 0.3-3.0 u/exch. If your ratio value is outside the range, this warning message will appear on the screen. Press ESC to correct or ACT to continue.

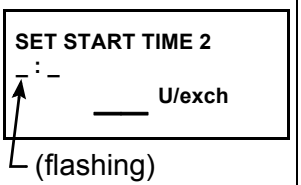
To set just one ratio:

a. Press **ESC**.

using grams



using exchanges



To set more than one carb ratio:

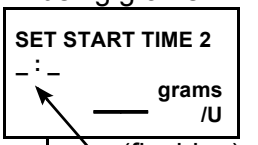
a. Set the start time for the next ratio and press **ACT**.

b. Set the value for the next ratio and press **ACT**.

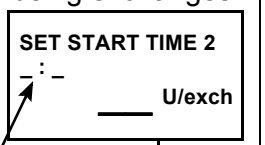
c. Repeat steps **a** and **b** to set more ratios.

d. Press **ESC** when you are done.

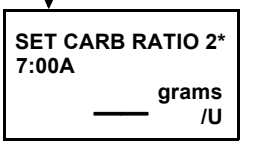
using grams

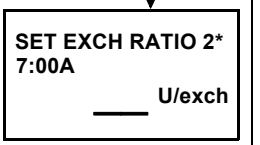


using exchanges



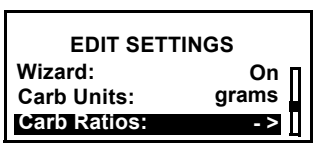
(flashing) set then press **ACT**





* *Depending on how many ratios you set, this number can be 2 through 8.*

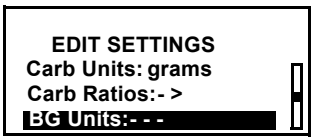
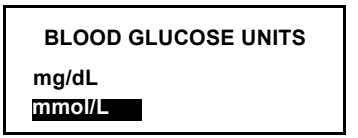
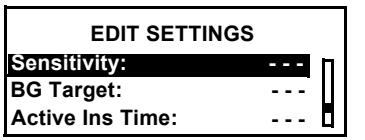
6 The screen will return to the EDIT SETTINGS screen. Set your BG Units as described in the next section.



BG units

You can select **mg/dL** or **mmol/L** as your Blood Glucose Unit (measurement type).

NOTE - If you make changes to your BG units setting, you must reprogram your insulin sensitivity and BG targets.

7	8	9
In the EDIT SETTINGS screen, select **BG Units** and press **ACT**.	Select **mg/dL** or **mmol/L** and press **ACT**.	The screen will return to the EDIT SETTINGS screen to set your insulin sensitivity next.
		

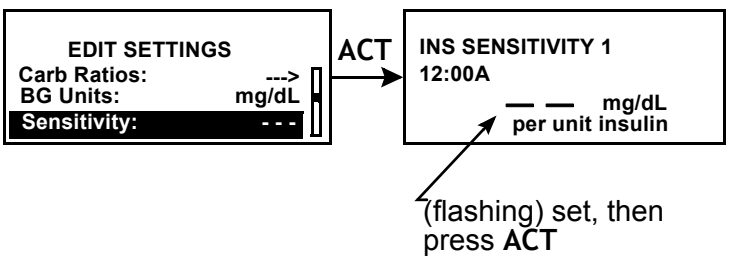
Insulin sensitivity

Your insulin sensitivity is the amount your blood glucose (BG) level is reduced by one unit of insulin. This value is used to calculate a suggested insulin dose to correct a high BG. Because this amount may vary throughout the day, your pump lets you set up to eight (8) sensitivity settings. Your healthcare professional may only have you program one or two insulin sensitivities when you first start using the Bolus Wizard feature. Record your settings in the "Bolus Wizard feature settings" table.

Insulin sensitivity values are normally between 20 – 100 mg/dL (or 1.1 – 5.6 mmol/L). If your value is outside this range, a warning message will appear on the screen.

1. In the EDIT SETTINGS screen, select Sensitivity and press **ACT**.
2. Enter the value for the first insulin sensitivity setting and press **ACT**.

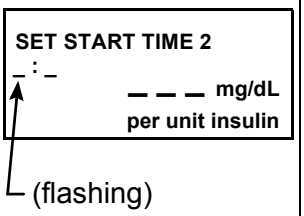
NOTE - The start time for your first insulin sensitivity is midnight (12:00A) and cannot be changed.



3 The SET START TIME 2 screen will appear.

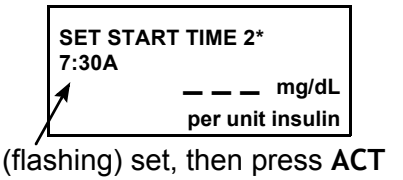
4 **To set just one insulin sensitivity:**

Press **ESC**.



To set more than one insulin sensitivity:

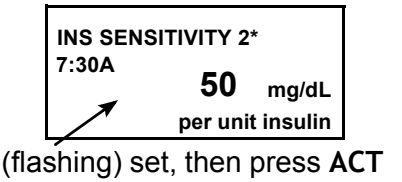
a. Set the start time for the next insulin sensitivity and press **ACT**.



b. Set the value for the next insulin sensitivity and press **ACT**.

c. Repeat steps a and b to set more values.

d. Press **ESC** when you are done.



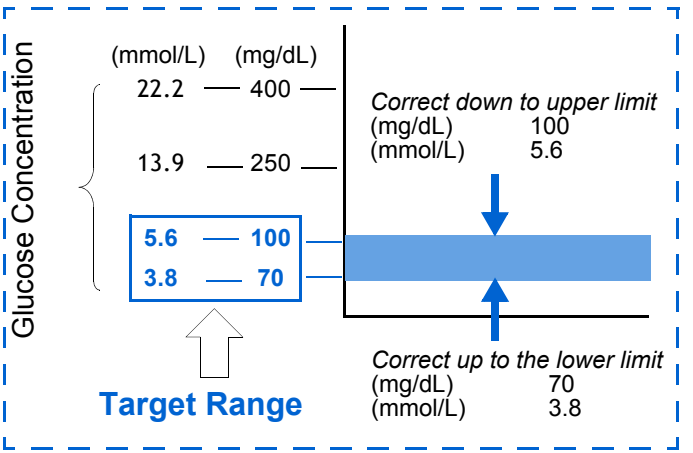
* *Depending on how many values you set, this number can be 2 through 8.*

5 The screen will return to the EDIT SETTINGS screen. You can now program your BG target(s).

BG targets

The BG target setting allows you to set glucose targets. Because your targets may vary throughout the day, your pump allows you to set up to eight (8) BG targets each day. If you want to set just one target value instead of a range, set both the low and high values to the same number.

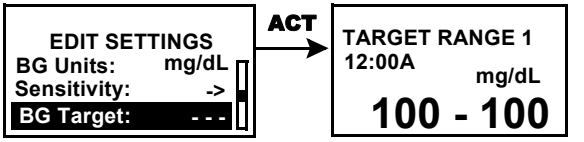
If your current BG is above the BG Target Range, the Bolus Wizard feature will calculate a correction dose. If your current BG is below the BG Target Range, the Bolus Wizard will calculate a negative correction and subtract it from your food bolus.



NOTE - Pumps are sent from the factory with default BG target of 100 - 100 mg/dL (5.6-5.6 mmol/L). If you adjust your BG Targets outside of 90-140 mg/dL (5.0-7.8 mmol/L) the pump screen displays a warning that the values are acceptable but outside normal range.

1 In the EDIT SETTINGS screen, select BG Target and press **ACT**.

2 Enter the low end of your BG target range and press **ACT**.Then enter the high end of your BG target range and press **ACT**.



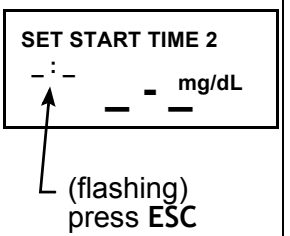
first BG Target Range (flashing)

NOTE - The start time for your first BG target range is midnight (12:00A or 00:00) and cannot be changed.

3 The screen will display one of these messages:

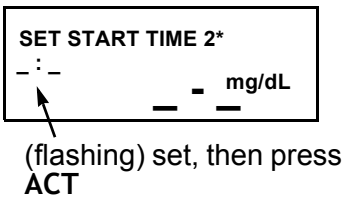
4 To set just one BG Target:

a. Press **ESC**.



To set more than one BG Target:

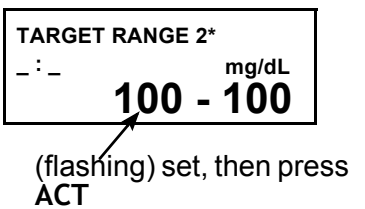
a. Set the start time for the next BG target range and press **ACT**.



b. Set the low and high values for the next BG target range and press **ACT**.

c. Repeat steps a and b to set more BG target ranges.

d. Press **ESC** when you are done.



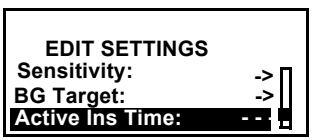
**Depending on how many targets you set, this number can be 2 through 8.*

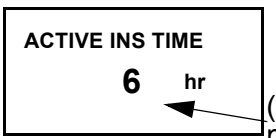
Active insulin time

The active insulin time setting lets the pump know which active insulin time to use in calculating the amount of active insulin to subtract before estimating a bolus. Refer to “About active insulin” on page 60 for more information about this setting.

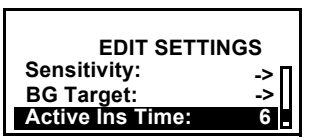
Your healthcare professional should determine the active insulin time that is best for you. To set the time, take the following steps:

1	2	3
In the EDIT SETTINGS screen, select **Active Ins Time** and press **ACT**.	Set the number of hours for the active insulin time and press **ACT**.	The screen will return to the EDIT SETTINGS screen where you can see the new setting.





(flashing) set, then press **ACT**



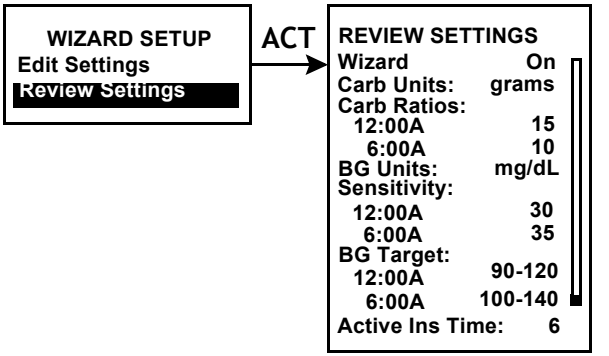
Message	What it means
“Bolus Wizard setup is complete”	Bolus Wizard feature is on and all settings are programmed.
“Bolus Wizard is off”	Bolus Wizard feature is off.
“Missing Info”	Bolus Wizard feature is on, but some of the settings are not programmed. This screen will show instructions and the missing information. You must program the missing information before you can use the Bolus Wizard feature.

Review your Bolus Wizard feature settings

Check your Bolus Wizard feature settings in the REVIEW SETTINGS screen. If necessary, compare this information with your information in the Bolus Wizard feature settings table.

Bolus > Bolus Wizard Setup > Review Settings

1. In the REVIEW SETTINGS screen, scroll through the text to view your Bolus Wizard settings.
2. Exit the menus when you are done.



Meter option

You can set up your pump to automatically receive your BG reading from a linked meter. This meter may have been included with your pump and may not be available in all countries. Check with your local Medtronic MiniMed representative. Your pump is set at the factory with the meter option turned off. Programming your meter ID links your pump to the meter. If you do not “link” the meter to your pump, you will enter your BG readings manually. Each meter has its own unique ID. You can link up to three (3) meters to your pump.

When the pump is idle (at the HOME screen), it will beep or vibrate when it receives a BG reading from the meter. The reading will appear on the pump screen.

NOTE - The use of RF (radio frequency) devices with the pump reduces pump battery life.

You have to turn on the meter option to add, delete or review the meter ID(s) programmed in your pump. The ID is the serial number printed on the back of the meter. See the user guide that came with your meter for detailed information on how to use it.

Meter rules

If you want your pump to communicate with the meter, the following conditions must apply:

1. The meter option must be turned on and programmed. Refer to the instructions in this section.
2. Your pump must be within 4 feet (1.2 meters) of your meter to receive the BG reading.
3. The pump cannot have a Low Battery alert condition.
4. When programming a bolus, the BG measurement from the meter will appear as the default BG value on the ENTER BG screen. The pump will not display a reading that is older than 12 minutes on the ENTER BG screen.
5. Make sure the pump's Meter Option is set to **Off** while onboard aircraft.
6. Do not use the RF meter to send your BG readings to the pump while onboard aircraft. Manually enter your BG.

CAUTION: The pump will not receive signals from the linked meter while it has a Low Battery alert condition. To ensure the meter communicates with the pump, make sure the pump does not have a low battery. (Replacing the low battery with a new battery will restore meter-pump communication.)

Add, delete, review meter IDs

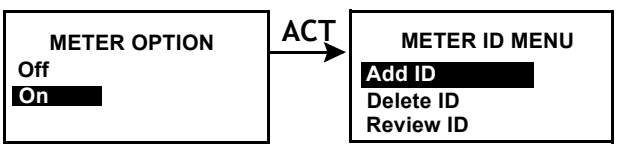
The meter programming screens are very similar to those for the remote control. Make sure to select **Meter Options** (in the UTILITIES MENU) when programming your meter.

If you are not sure that your meter ID is entered in your pump, check the REVIEW METER ID screen.

You have to turn on the meter option to add, delete or review the meter ID(s) programmed in your pump.

Main > Utilities > Meter Options

1. In the METER OPTION screen, select **On** and press ACT. The METER ID MENU will appear.

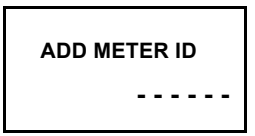


2 Add, delete or review your meter ID(s) as desired.

Add

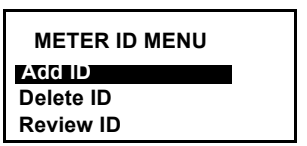
a. Select **Add ID** and press **ACT**.

b. Use the up and down arrow buttons to enter each of the six ID numbers. Press **ACT** after each entry.



(flashing)

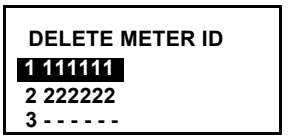
c. After you set the last number of the ID, the screen will return to the METER ID MENU.



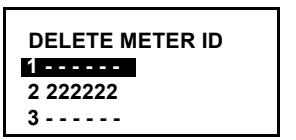
Delete

a. Select **Delete ID** and press **ACT**.

b. Select the meter ID that you want to delete and press **ACT**.



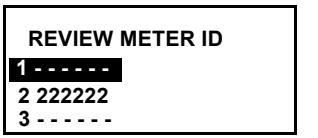
c. The selected ID is now deleted.



Review

a. Select **Review ID** and press **ACT**.

b. The programmed IDs will show in the REVIEW METER ID screen.



3 Exit the menus when your are done.

Normal bolus using Bolus Wizard feature

After the Bolus Wizard feature is turned on and programmed, this feature can calculate an estimate of insulin you need for your correction bolus and/or your food bolus. You have the option of using the estimate or changing it as necessary. Additionally, your pump can receive your BG reading from the meter, if they are linked.

Use (B) to deliver a Normal bolus at any time except during another Normal bolus. A Normal bolus will temporarily interrupt a Square Wave or Dual Wave bolus that is delivering. After the Normal bolus is finished, the Square Wave or Dual Wave bolus delivery will resume.

NOTE - If you want to use the pump-to-meter link, make sure the meter option is on. Refer to the section "Meter option" for instructions.

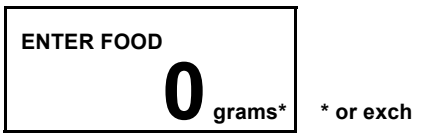
1. If you want a correction bolus, check your BG with your BG meter and go to step 2. If you want to bolus for food, go to step 2.
2. Press (B) on your pump, or go to the BOLUS MENU, select Use Bolus Wizard, and press **ACT**.
3. The ENTER BG screen will appear.

If you are NOT using a linked meter:	If you are using a linked meter:
Enter your BG value. Press **ACT** and continue to step 4. If you are not entering a BG and want to bolus for food, select the dashes in the ENTER BG screen. Press **ACT** and continue to step 4. ENTER BG - - - mg/dL* * or mmol/L *NOTE - Selecting dashes in this screen will make the Bolus Wizard feature calculate the insulin needed for your food entry without considering your BG level.*	The meter reading will flash on the pump screen. Press **ACT** to accept this amount. (You can change this BG value, if necessary.) Continue to step 4. ENTER BG Meter XXX mg/dL* * or mmol/L *NOTE - You must program your bolus within 12 minutes of the pump receiving the reading from the meter. If more than 12 minutes have passed, the reading will no longer be available from the screen and you must enter your BG manually.*

4 In the ENTER FOOD screen,

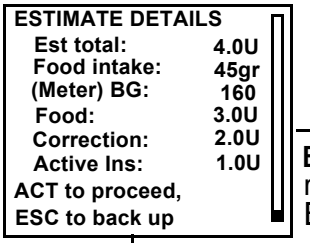
If this is a food bolus:	If this is a correction bolus:
Enter the food value you will eat and press **ACT**.	Select **0** (zero) as the value and press **ACT**.

(flashing)



(flashing)

5 Review the information in the ESTIMATE DETAILS screen. Press **ACT** to continue to step 6. If you need to make any changes, press **ESC** to return to the ENTER BG screen (step 3) and make changes as necessary.

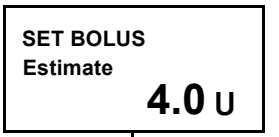


(values shown are for example only)

ESC returns to the ENTER BG screen

ACT to continue

6 In the SET BOLUS screen, the estimated bolus amount shows (flashing). Change the amount if desired. Press **ACT** to accept and start delivery of the bolus.



ACT to accept

NOTE - If you have BG Reminder turned on, a screen displays allowing you to accept or modify the length of time after this bolus before you are reminded to check your BG. See "BG reminder" on page 25 for information about this feature.

7 The BOLUS DELIVERY screen appears. The pump will beep or vibrate at the start and end of the bolus. As the bolus is delivered, the screen shows the bolus type and amount until the total units have been delivered. The screen then defaults to the HOME screen.

Bolus Wizard feature examples

For the scenarios that follow, Michael has his Bolus Wizard feature turned on with the following settings:

Carb ratio: 15 grams per unit of insulin
Insulin Sensitivity: 40 mg/dL per unit of insulin
BG Target: 90-120 mg/dL
Active Insulin Time: 6 hours

NOTE - If you want to see details of the formulas the Bolus Wizard feature uses to calculate estimate boluses like the ones in the following examples, see "Bolus Wizard feature specifications" on page 141.

Example 1: BG on target (normal BG) and no active insulin

Michael awakens in the morning before school and his mother has breakfast waiting for him. Before he begins eating, he tests his blood glucose with his linked meter and his BG result of 120 mg/dL is automatically sent to his pump.

He estimates that his meal consists of 60 grams of carbohydrates. When prompted by the Bolus Wizard feature, he enters this amount in the ENTER FOOD screen. Based on his Bolus Wizard feature settings, the pump will suggest that he take 4.0 units of insulin.

(food estimate) $\frac{60g}{15g/u}$ = 4 units + (correction) Correction is 0 because the current BG reading is within the BG Target Range

= 4 + 0
= 4 units
estimate = 4 units

Example 2: BG above target (high BG) and no active insulin

The next day, Michael wakes up before school. Before eating the same breakfast, he tests his BG with his linked meter and finds it to be 200 mg/dL, which is above his target of 120 mg/dL. His BG reading is automatically sent to his pump.

When prompted by the Bolus Wizard feature, he enters his carbohydrate amount of 60 grams in the ENTER FOOD screen. Based on his settings, the pump will suggest that he take 6.0 units of insulin.

$$\text{(food estimate)}\ \frac{60\text{g}}{15\text{g/u}} = 4\ \text{units} \quad + \quad \text{(correction)}\ \frac{200\text{mg/dL} - 120\text{mg/dL}}{40\text{mg/dL/u}} = 2\ \text{units}$$

$$= 4 + 2$$
$$= 6\ \text{units}$$
$$\text{estimate} = 6\ \text{units}$$

Example 3: BG below target (low BG) and no active insulin

On another morning, Michael sits down before eating the same breakfast. He tests his BG with his linked meter and finds it at 70 mg/dL, which is below his Low BG target of 90 mg/dL. His reading is automatically sent to his pump.

When prompted by the Bolus Wizard feature, he enters his carbohydrate amount of 60 grams in the ENTER FOOD screen. Based on his settings, the pump will suggest that he only take 3.5 unit of insulin.

$$\text{(food estimate)}\ \frac{60\text{g}}{15\text{g/u}} = 4\ \text{units} \quad + \quad \text{(correction)}\ \frac{70\text{mg/dL} - 90\text{mg/dL}}{40\text{mg/dL/u}} = \frac{-20\text{mg/dL}}{40\text{mg/dL}} = -0.5\ \text{unit}$$

$$= 4 + (-0.5)$$
$$= 3.5\ \text{unit}$$
$$\text{estimate} = 3.5\ \text{unit}$$

Example 4: BG above target (high BG) with active insulin

Michael is at school and wants to eat a snack in the late morning. He tests his BG with his linked meter and finds it to be at 200 mg/dL, which is above his target of 120 mg/dL. He estimates that his snack contains 60 grams of carbohydrate, so he enters 60 into the pump when prompted by the Bolus Wizard feature. Based on his settings, and as a result of 1.5 units of active insulin, his pump will suggest that he take 4.5 units.

(food estimate)

$$\frac{60\text{g}}{15\text{g/u}} = 4 \text{ units}$$

+

(correction)

$$\frac{200\text{mg/dL} - 120\text{mg/dL}}{40\text{mg/dL/u}}$$ -1.5 units (active insulin)= 2 - 1.5 = 0.5 units

= 4 + 0.5

= 4.5 units

estimate = 4.5 units

Example 5: BG below target (low BG) with active insulin

Another day at school, Michael is getting ready to eat lunch. He tests his BG with his linked meter and finds it at 70 mg/dL (3.9 mmol/L), which is below his Low BG target of 90 mg/dL (4.9 mmol/L). His reading is automatically sent to his pump.

When prompted by the Bolus Wizard feature, he enters his carbohydrate amount of 60 grams in the ENTER FOOD screen. Based on his settings, and despite 1.5 units of active insulin, his pump will suggest that he take 3.5 units of insulin.

$$\underbrace{\frac{60\text{g}}{15\text{g/u}} = 4 \text{ units}}_{\text{(food estimate)}} + \underbrace{\frac{70\text{mg/dL} - 90\text{mg/dL}}{40\text{mg/dL/u}} = \frac{-20\text{mg/dL}}{40\text{mg/dL}} - 0 \text{ (active insulin*)} = -0.5 \text{ unit}}_{\text{(correction)}}$$

$$= 4 + (-0.5)$$

$$= 3.5 \text{ unit}$$

estimate = 3.5 unit

**Note: When the current BG is below the target low BG, an active insulin amount that is greater than the correction estimate is not considered in the Bolus Wizard feature calculations.*

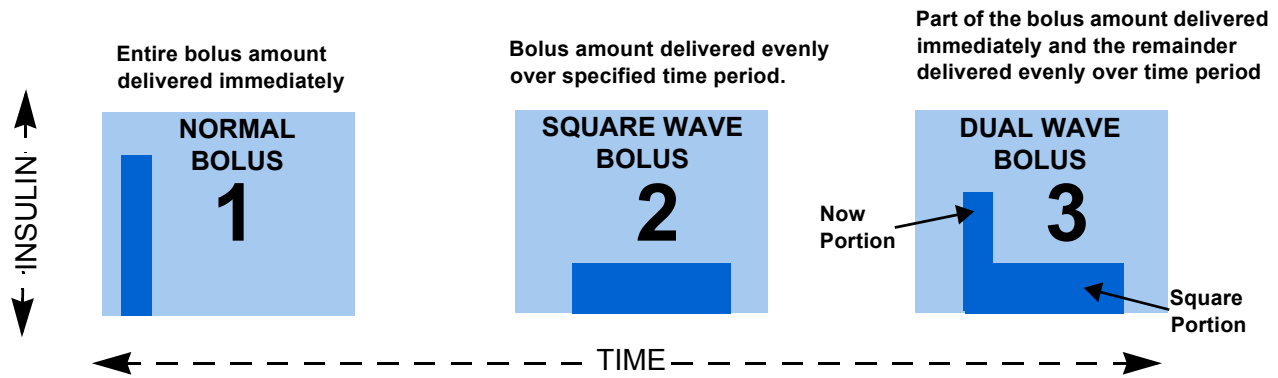
Square Wave and Dual Wave bolus

Square Wave bolus delivers a bolus evenly over a period of time (30 minutes to 8-hours). This bolus can be used for insulin delivery when you have eaten a long meal with extended snacking. It can also be useful if you have delayed food digestion due to gastroparesis or meals high in fat. A Square Wave bolus can be useful if a Normal bolus drops your BG too rapidly. Since the Square Wave portion extends over a period of time, the insulin is more likely to be available to match your individual needs.

NOTE - During delivery of a Square Wave bolus, you will not be able to do the following pump functions: change the max bolus amount, disable or deliver Dual and Square Wave boluses, do a fixed prime or rewind, change the active insulin time, run a selftest, or access the User Settings menu. All other pump functions are still available during the Square Wave bolus.

Dual Wave bolus delivers a combination of an immediate Normal bolus followed by a Square Wave bolus. The Square Wave portion is delivered evenly over a period of time. A Dual Wave bolus is useful for meals with both rapidly and slowly absorbed carbohydrates. For example, a Dual Wave bolus would be appropriate for fruit and crackers followed by pasta. The Dual Wave option meets both immediate and extended insulin needs. A Dual Wave bolus is also useful for correcting elevated blood glucose before a meal.

See the following graphic for a description of the different bolus types:



Dual Wave/Square Wave bolus On/Off

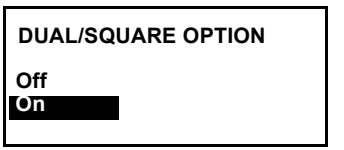
NOTE - It is important that you consult with your healthcare professional before using a Square Wave or Dual Wave bolus. You should be familiar with the basic functions of your pump before exploring these options.

To set up a Dual Wave or Square Wave bolus, you must first turn on the Dual/Square bolus option. If the option is off, a Dual Wave or Square Wave bolus cannot be programmed or delivered.

1 Go to the DUAL/SQUARE OPTION screen.

Main > Bolus > Dual/Square Bolus

2 Select **On** and press **ACT**. The feature is now on. Exit the menus.



Square Wave or Dual Wave bolus without Bolus Wizard feature

NOTE - To deliver a Square Wave or Dual Wave bolus, the Dual/Square bolus option must be on.

1 Make sure the Dual/Square option is on.

2 Calculate your food and/or correction bolus amount.

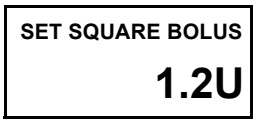
3 Press on your pump, or go to the BOLUS MENU and select **Set Bolus** (or **Manual Bolus**), then press **ACT**.

4 The BOLUS TYPE (or MANUAL BOLUS TYPE) screen will appear.

For a Square Wave bolus do these steps:

a. Select **Square Wave Bolus**. Press ACT. The SET SQUARE BOLUS screen will appear.

b. Enter the desired amount for the Square Wave bolus units and press **ACT**.

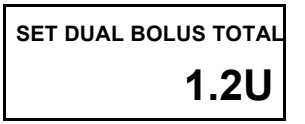


c. Continue to step **5**.

For a Dual Wave bolus do these steps:

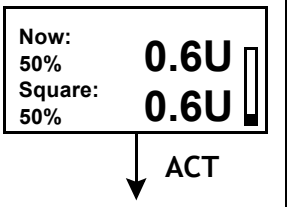
a. Select **Dual Wave Bolus** and press **ACT**. The SET DUAL BOLUS TOTAL screen will appear.

b. Enter the desired amount for the total dual bolus units. Press **ACT**.



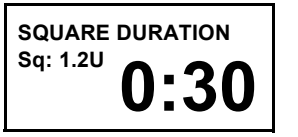
NOTE - The number of units you enter for the SET DUAL BOLUS TOTAL is a total of both the Normal and Square Wave bolus units.

c. In the next screen, press / to change the normal (Now) and Square portions of the Dual Wave bolus. Notice the screen also shows the percentage amount for each portion. Press **ACT**.



d. Continue to step 5.

5 The SQUARE DURATION screen will appear. Enter the amount of time you want the Square Wave bolus to last and press **ACT**.



NOTE - If you have BG Reminder turned on, a screen displays allowing you to accept or modify the length of time after this bolus before you are reminded to check your BG.

6 The BOLUS DELIVERY screen will appear. The pump will beep or vibrate at the start and end of the bolus. During bolus delivery, the pump will return to the HOME screen. An open circle will appear indicating that your pump is in Special mode.

Square Wave bolus practice

Your target pre-meal blood glucose range is _____ to _____.
Check your pre-meal blood glucose. Are you within your target? _____ If yes, continue. If no, wait to try the following test until your pre-meal blood glucose is within your target range:

TEST: Choose a meal that is high in fat (e.g. hot dogs, pizza, cheese enchiladas). Determine your meal bolus amount. Set the Square Wave bolus to deliver the determined amount of insulin over 2-hours[1].

Check your BG (blood glucose) and record:Pre-meal _____
1 hour post meal _____
2 hours post meal _____
3 hours post meal _____
4 hours post meal _____

Did your blood glucose return to your pre-meal target within 4 hours post meal? _____[2]

[1] *This duration of time and ratio is an example. As always, consult with your healthcare professional for guidance.*

[2] *If you answered YES, then repeat this test with the same meal on another day to verify your results. If you answered NO, discuss this with your healthcare professional for guidance.*

Dual Wave bolus practice

Can you think of any meals where this feature would help you with blood glucose control?
Your target pre-meal blood glucose range is _____ to _____

Check your pre-meal blood glucose. Are you within your target? _____ If yes, continue. If no, try this test when your pre-meal blood glucose is within your target range:

TEST:

Choose a meal that has a combination of both rapidly absorbed and slowly absorbed carbohydrates. Determine your meal bolus amount. Set the Dual Wave bolus to deliver the determined amount of insulin. Program your pump to deliver ½ over 2-hours[1], and the other half immediately.

Check blood glucose and record:

Pre-meal_____

1 hour post meal_____

2 hours post meal_____

3 hours post meal_____

4 hours post meal_____

Did your blood glucose return to your pre-meal target within 4 hours post meal? _____[2]

[1] *This duration of time and ratio is an example. As always, consult with your healthcare professional for guidance.*

[2] *If you answered YES, repeat this test with the same meal on another day to verify results. If you answered NO, discuss this with your healthcare professional for guidance.*

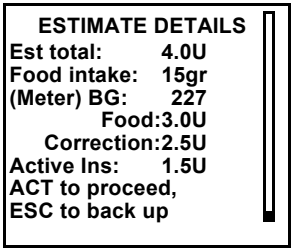
Using the Bolus Wizard feature for a Square Wave or Dual Wave bolus

If you are using the Bolus Wizard feature to calculate your Square Wave or Dual Wave bolus amounts, you will be prompted to enter your BG reading and/or the carb/exchange units you will eat. The Bolus Wizard feature will use this input to calculate your suggested correction and/or food bolus amount. If you do not want to use the Bolus Wizard feature estimate, you can change it, if desired.

1 The Bolus Wizard feature must be turned on and the settings must be programmed. Also, make sure the dual/square option is turned on.

NOTE - If you want to use the pump-to-meter link, make sure the meter option is on. Refer to the section "Meter option" for instructions.

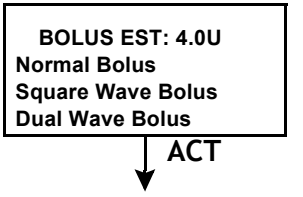
2 After you enter your BG and/or food entry, review the information in the ESTIMATE DETAILS screen. Press **ACT** to continue to step 3. If you need to make any changes, press **ESC** to return to the ENTER BG screen and make changes as necessary.



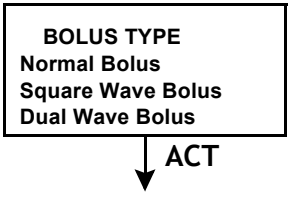
(values shown are for example only)

3 In the next screen, select **Square Wave Bolus** or **Dual Wave Bolus** as desired and press **ACT**.

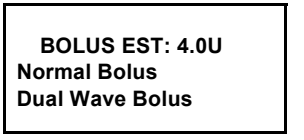
(using the Bolus Wizard feature)



(without the Bolus Wizard feature)

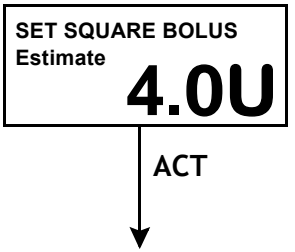


NOTE - If you are using the Bolus Wizard feature and it calculates that your bolus includes a portion to correct your high BG, the Square Wave bolus will not be available. This helps you to select a bolus type (Normal or Dual Wave) that has an immediate delivery option to cover your high BG.



4 For a Square Wave bolus do these steps:

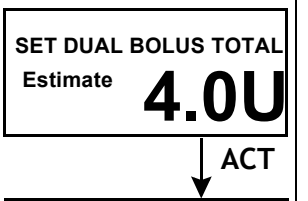
The SET SQUARE BOLUS screen will appear. Change the amount if desired. Press **ACT** to accept.



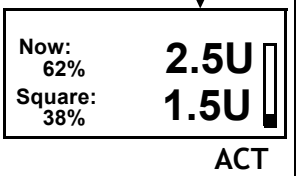
For a Dual Wave bolus do these steps:

NOTE *- The number of units you program for the SET DUAL BOLUS TOTAL is a total of both the Normal and Square Wave bolus units.*

a. The SET DUAL BOLUS TOTAL screen will appear. Change the amount if desired. Press **ACT** to accept.

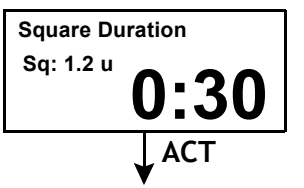


b. In the next screen, notice the screen shows the Normal (Now) and Square portions of the Dual Wave bolus. Press **ACT** to accept the portions suggested by the Bolus Wizard feature, or press / to change these portions then press **ACT**.



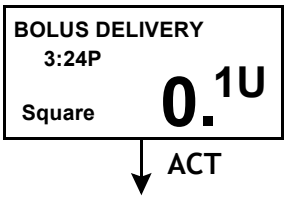
NOTE *- The Bolus Wizard feature recommends splitting the food portion of your bolus 50/50 between the Square and Now portions. The entire correction amount is always recommended to the Now portion. In this example the Now portion consists of half of the food insulin plus the correction amount less the active insulin (1.5U+2.5U-1.5U). This gives 2.5U or 62% of total insulin of 4.0U. The Square portion consists of the other half of the food insulin (1.5U) which is 38% of total insulin of 4.0U.*

5 The SQUARE DURATION screen will appear. Enter the amount of time you want the Square Wave bolus to last and press **ACT**.



NOTE - If you have BG Reminder turned on, a screen displays allowing you to accept or modify the length of time after this bolus before you are reminded to check your BG.

6 Press **ACT** to accept and deliver the bolus. The BOLUS DELIVERY screen appears.The pump beeps or vibrates at the start and end of the bolus. Shortly after bolus delivery begins, the screen defaults to the HOME screen. An open circle will appear indicating that your pump is in Special mode. If you want to see the progress of the delivery, press **ESC** to see the STATUS screen.



Easy bolus

The EASY BOLUS button allows a quick way to deliver a Normal bolus. You will pre-set the settings for this feature in the EASY BOLUS OPTION screen in the BOLUS MENU. Your pump is sent from the factory with the Easy Bolus feature set to on. If you do not want to use Easy Bolus, turn it off.

After you set up Easy Bolus, with each press, you can increase the Normal bolus amount by a fixed amount, called a "step." Before you can deliver an Easy Bolus, you must set the amount in the EASY BOLUS ENTRY screen. This amount equals the number of units of insulin for each step. The maximum number of steps can equal up to your maximum bolus limit.

NOTE - When using vibrate mode, EASY BOLUS is limited to 20 steps or maximum bolus, whichever comes first.

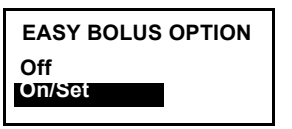
Once you set your step amount, you can program your Easy Bolus. When you are in the HOME screen, each time you press the Easy Bolus amount increases by one "step." You will hear a beep or feel a vibration for each step increase. Each beep is a different tone. This makes it easy for you to count the beeps while you are programming your Easy Bolus.

Easy bolus setup

1 Go to the EASY BOLUS OPTION screen.

Main > Bolus > Easy Bolus

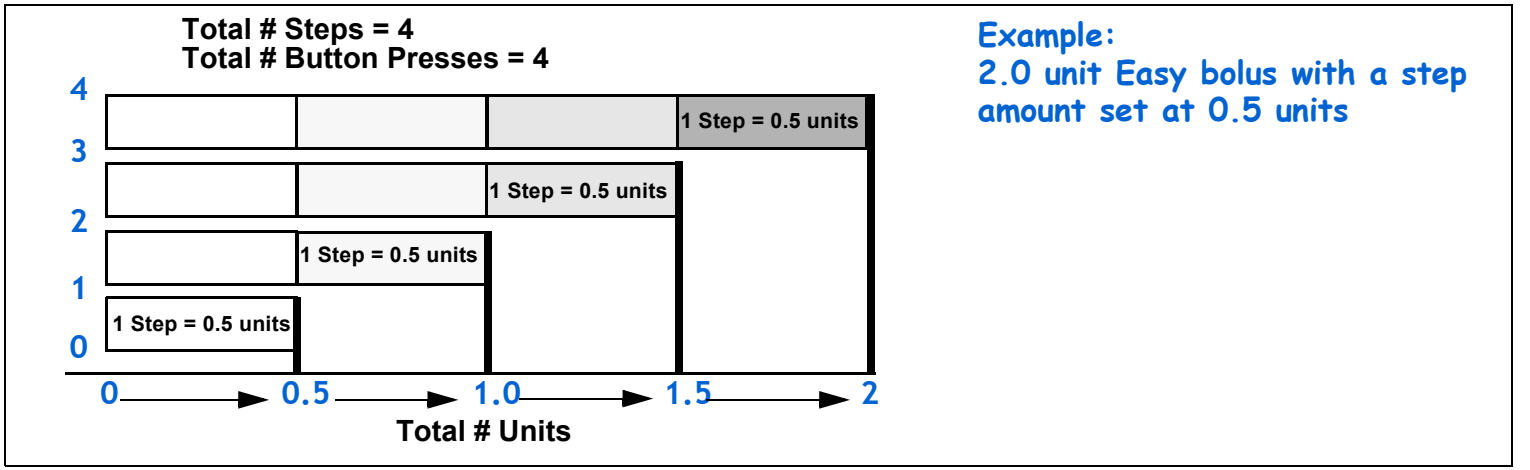
Select On/Set and press **ACT**. If you do not want to use Easy Bolus, select **Off** and press **ACT**.



NOTE - If you are using the remote control, the Easy Bolus must be set to on.

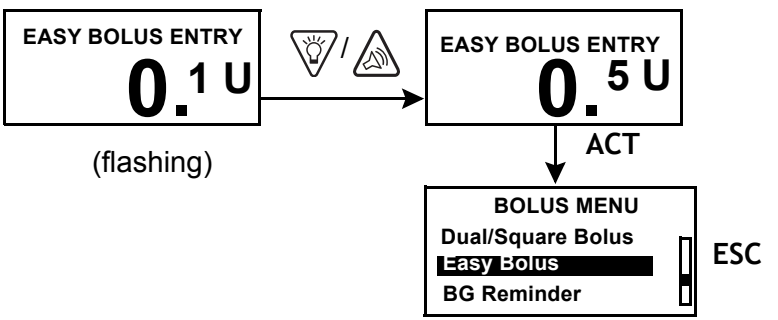
Step value setup

You can set the step value from 0.1 to 2.0 units (factory setting: 0.1). Set the step to a number that is convenient to use and easy to multiply.



2 In the EASY BOLUS ENTRY screen, the "step" value will appear flashing. Change the value and press **ACT** (The step value is the increment you will use for your Easy bolus.)

3 The screen will return to the BOLUS MENU. Your step amount is now programmed and Easy Bolus is ready to use. Exit the menus.

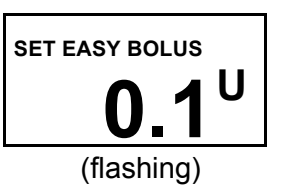


Deliver Easy Bolus

Practice using the Easy Bolus feature while looking at the pump screen as you count the beeps. After you are familiar with Easy Bolus, you can use the audible tones for bolus delivery without having to look at the screen.

NOTE - Easy bolus only works from the HOME screen.

1 From the HOME screen, press . The SET EASY BOLUS screen will appear. The single "step" value will be flashing.



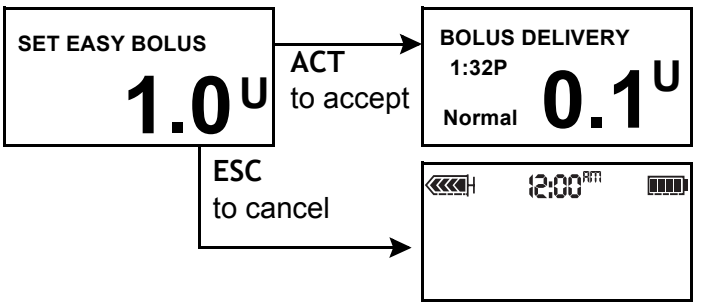
2 Press the number of times needed for your bolus amount. Watch the amount change on the screen with each press. The pump will vibrate or sound a different tone for each press. When your total bolus amount appears on the screen, press **ACT**. Listen/feel to count the steps without looking at the screen.

For example: You need to deliver a 1.0 unit bolus, and your step size is set to 0.1. Each time you press , the units increase by the "step" amount. To deliver 1.0 units, you need to press the button 10 times. (10 X 0.1 = 1.0) The screen will show 1.0 units.

NOTE - Pressing or ESC will cancel the Easy bolus. For your safety you cannot use the to select the Easy Bolus values.

3 If this amount is correct, press **ACT** to start the Easy Bolus delivery. The BOLUS DELIVERY screen will show the units being delivered. When the total bolus is finished, the pump will beep or vibrate.

If this amount is wrong, press **ESC** or to start over. The pump will return to the HOME screen.



Example 1: Easy bolus

Alexander is a busy executive with an accounting firm. He wears his Paradigm pump on his belt and does not want to take it off to give himself a bolus. Alex can easily reach down and feel for the Easy Bolus button to give a bolus.

He previously programmed his pump to deliver an Easy Bolus in steps of 0.5 unit increments. From the HOME screen, with each press of the , the pump will sound a different tone so he can keep track of the number of button presses.

He wants to give himself 2.0 units for a snack, so he will press 4 times (4 presses x 0.5 units/press = 2.0 units) and then press the **ACT** button. The pump counts back 4 beeps because he pressed 4 times. He simply presses **ACT** to confirm the amount, and his pump delivers the 2.0 units.

When Alexander wants to be more discrete, or does not want his pump to beep in an important meeting, he can set the pump to "vibrate" mode (see section. "Alert types") and feel for vibrations rather than listening for the tones.

Your turn: Easy bolus practice

The factory default setting for the Easy Bolus feature is 0.1 unit steps. You can change the step level as necessary to a value that is more convenient for you to use and easier to multiply.

Give your next bolus by using the Easy Bolus feature on your pump.

How many units did you give? _____

How many tones did you count? _____

Your step level is _____.

It might be a good idea to look at your pump's screen to see the bolus amount as well as counting the steps the first few times you try this until you become familiar and comfortable with the feature.

Basal patterns

The Basal Patterns feature is optional for pump users. You can set your pump to deliver a standard basal and two additional basal patterns to meet your individual daily, weekly, or monthly needs. Keep a paper copy of your programmed patterns with you at all times in case you need to reprogram your pump. To select and use pattern A or pattern B, the patterns option must be on and programmed.

Basal patterns are useful to establish different sets of basal rates to match different needs such as:

- Changes in time of sleep (for example, work shift)
- Different schedules during the week versus weekend
- Extended periods of higher or lower activity
- Softball games every Saturday morning, etc.
- Menses

NOTE - You may want to explore this option after you become familiar with the basic pump functions. It is important that you consult your healthcare professional before using a pattern other than your standard pattern.

- Standard pattern: Your normal basal that supports your usual day-to-day activity. When the Patterns feature is off, the pump uses your standard basal pattern.
- Pattern A/B: Basal pattern that supports activity levels that are not a part of your day-to-day routine, but are normal in your lifestyle. Such activities could be a sport that you do once a week or a change in your sleep pattern over the weekend.

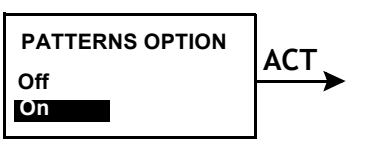
Patterns on/off

Your pump is set at the factory with the basal patterns feature turned off. After you turn on patterns, you still have to program and select a pattern (A or B), as described in the next sections, before the patterns feature is active. If you turn off the patterns feature, your pump will automatically select your standard basal pattern.

1 Go to the PATTERNS OPTION screen.

Main > Basal > Patterns

Select **On** or **Off** and press ACT.



2 The screen will go back to the BASAL MENU. The patterns feature is now on. Exit the menus.

Program a pattern

Your pump will keep your pattern settings even when the Patterns option is turned off. The patterns feature must be on to program a basal pattern.

NOTE - When you make changes to a pattern, the pump will use that pattern as the current basal. Make sure the basal you want is selected in the SELECT PATTERNS screen.

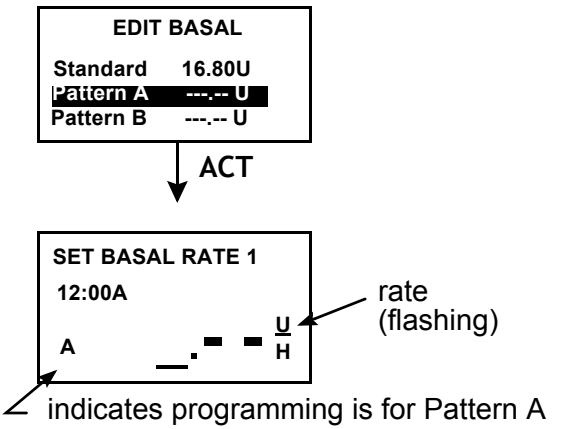
Do these steps to program your patterns:

1 Go to the EDIT BASAL screen.

Main > Basal > Set/Edit Basal

2 Select the basal pattern you want to program and press **ACT**. Notice that the open circle for special mode now appears in the icon bar on the top of your screen.

3 The SET BASAL RATE 1 screen will appear. The basal rate will flash indicating that it can be changed. Set your first rate and press **ACT**.



NOTE - The first basal rate starts at midnight and cannot be changed.

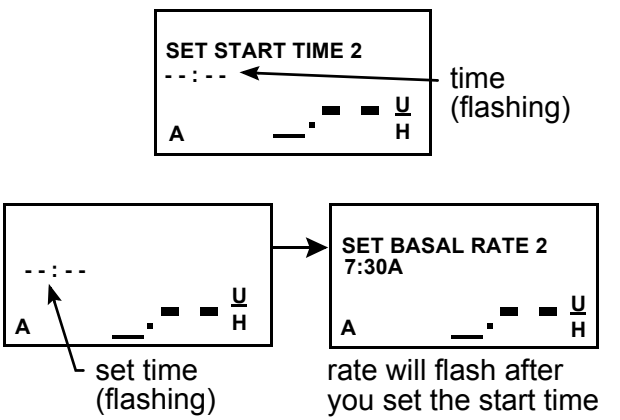
4 The SET START TIME 2 screen will appear. The start time will flash. If you want to use the same rate for the whole day, press **ESC** and go to step **5**.

If you want to program more rates, do these steps:

a. Set the start time for this rate and press **ACT**.

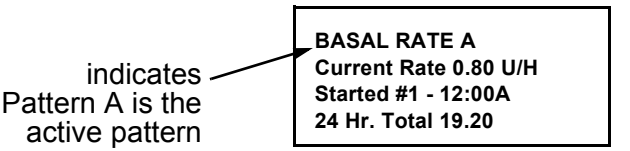
b. The rate will start flashing. Set the rate and press **ACT**.

c. Repeat steps **a** and **b** for each additional rate you want to program for that pattern. Each rate will have a different number (RATE 2, RATE 3, etc.). Press **ESC** when you are done. Continue to step **5**.



5 After you press **ESC**, the BASAL RATE screen appears. The screen will show:

- Current basal pattern and basal rate
- Time it started
- 24-hour basal total



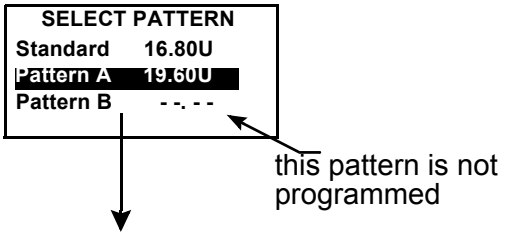
Select a pattern

Before you try to select a pattern to be active, make sure the Patterns feature is on. After your standard pattern and/or pattern A or B are set, do these steps to select a pattern to be the active one:

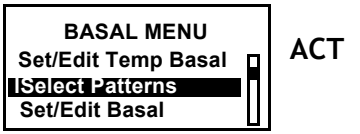
1 Go to the SELECT PATTERN screen.

Main > Basal > Select Patterns

2 Select the desired pattern, press **ACT**.



3 The screen will return to the BASAL MENU. Your basal pattern is now active. Exit the menus.



NOTE - If pattern A or B is active, the pump is in "Special mode" (an open circle appears at the top of the screen).

Example 1:
Basal patterns

Ken has had his insulin pump for about a month. He tests his blood glucose 4 - 6 times a day and records his results in his logbook. He is happy with his glucose control during the week but on the weekends, he noticed that he has to eat more food to prevent his blood glucose from running too low.

Ken has realized that during the week while he is at work, he is very inactive and sits at a desk most of the time. On the weekends, though, he is busy with yard work, running errands and playing with his kids. He determines that he needs to have lower basal settings to receive less insulin during active times, such as his weekend.

He can use the Basal Patterns feature to support his weekend change in activity. During the week, he can set his pump to deliver in the standard setting, and on Saturday morning, he can switch over to Pattern A, which he can set with lower basal rates for the weekend. On Monday morning, he can return his pump to the Standard setting for his weekday insulin needs.

Example 2:
Basal patterns

Cynthia has had diabetes for about 12 years and has been on her Paradigm pump for several weeks. Every Monday, Wednesday and Friday, Cynthia goes on a 2-mile walk in the morning. To prevent hypoglycemia on these days, she uses the patterns feature. For those days, she simply switches over to Pattern A, which she has programmed with a lower set of basal rates. Before she learned to use the patterns feature, she would have to eat more food throughout the day to keep her blood glucose at a safe level. Cynthia has also noticed that a few days prior to menstruation, her blood glucose levels seem to rise, requiring more insulin. She has programmed Pattern B on her Paradigm pump with higher basal rates for this time. For her usual schedule, she uses the standard basal pattern.

Your turn:

Can you think of situations where you might require different basal rate settings on different days?

Temp basal rates

The temp basal rate feature is useful to manage BG levels during unusual short-term activities or conditions. These conditions could be an illness or unplanned physical activity that is not part of your daily routine.

A temporary basal rate allows an immediate short-term change to your basal insulin for a specified period of time (30 minutes to 24-hours). This rate can be up to your maximum basal rate setting. It offers an easy way to immediately meet short-term insulin needs for temporary activities or situations. When your blood glucose is temporarily high or low, a temp basal rate allows you to set a temporarily higher or lower basal to accommodate your blood glucose.

NOTE - Temp Basal is useful for a temporary condition or period of increased or decreased activity (i.e. a cold or physical activity) that is not usually part of your lifestyle. For ongoing periods of increased or decreased activity, the patterns feature may be more suitable.

How does temp basal work?

During a temp basal delivery, all other basal programming is temporarily overridden. After the temp basal delivery is completed, your pump will return to the programmed basal. A temp basal is delivered only once and does not repeat. If you want another temp basal, you must program the temp basal again. This feature may be useful to temporarily increase or decrease basal insulin during illness, exercise or similar situations.

Temp basal types

Based on your preference, you can select either Percent of Basal or Insulin Rate.

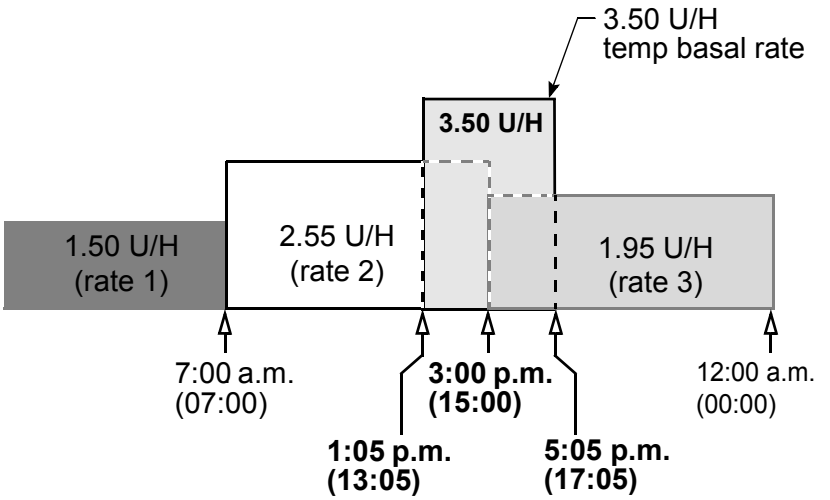
Insulin rate

Insulin rate is a fixed basal in units per hour (U/H). This temp basal type is independent of your current basal. When you select **Insulin rate (U/H)** for your temp basal type, your pump will deliver the fixed amount you have set for the duration as set. The amount of your temp basal insulin rate can be set up to your maximum basal rate setting.

If you make changes to your normal basal rate, your U/H temp basal is not affected and will continue to deliver as programmed.

NOTE - Temp Basal rate cannot exceed maximum basal rate.

temp basal settings	
temp basal type:	Insulin rate (U/H)
duration:	4:00 hours (1:05p - 5:05p)
rate:	3.50 U/H



Percent of basal

The temp basal type is dependent on your current basal rates. Percent temp basal is a percentage increase or decrease of your current basal (0 - 200 percent limited to your maximum basal rate setting).

The maximum percent limit is based on the largest basal rate segment with your programmed temp basal rate time.

For example: It is 6:00AM and your current basal rate is 1.50 U/H. You want to set a temp basal rate of 130 percent for seven (7) hours. The maximum percent temp basal rate you can set is 125 percent. Anything larger would make #2 segment exceed your maximum basal setting of 2.0 U/H.

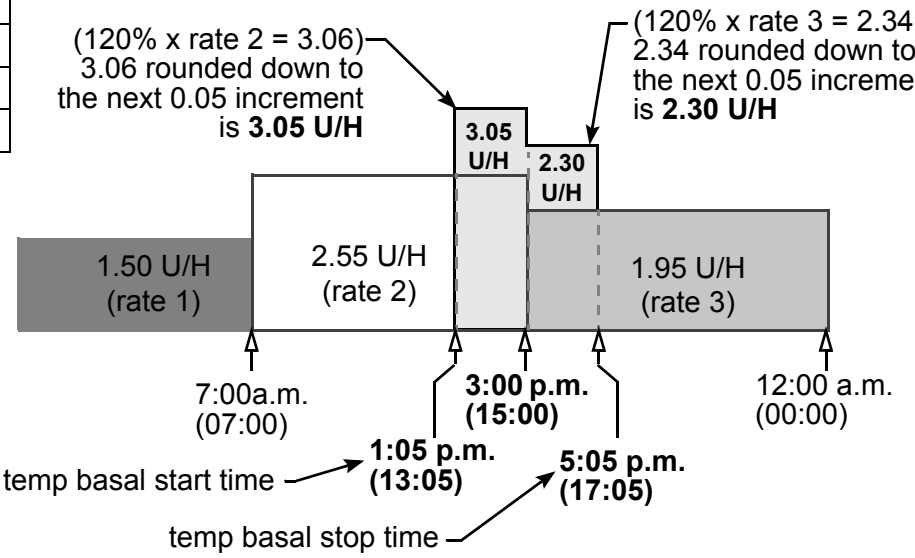
Your current basal rates:	Your maximum basal rate setting: 2.0 U/H
Segment #1: 12:00A	1.50 U/H
Segment #2: 11:00A	1.60 U/H (largest)
Segment #3: 4:00P	1.30 U/H

If your current basal changes (i.e. from rate 1 to rate 2), your percent temp basal amount will also change. The pump will deliver the percentage for the duration that you have set.

You cannot make changes to your normal basal rate while a percent temp basal is active. You must either wait until the temp basal is finished or cancel the temp basal in order to reprogram your normal basal rate setting(s).

NOTE - *The pump delivers basal amounts in 0.05 U/H increments. Because of this, your temp basal amount will be rounded down to the next 0.05 U/H increment.*

temp basal settings	
temp basal type:	Percent of basal
duration:	4 hours (1:05p - 5:05p)
rate:	120 percent (%)


(120% x rate 2 = 3.06)
3.06 rounded down to the next 0.05 increment is **3.05 U/H**
(120% x rate 3 = 2.34)
2.34 rounded down to the next 0.05 increment is **2.30 U/H**
3.05 U/H
2.30 U/H
1.50 U/H (rate 1)
2.55 U/H (rate 2)
1.95 U/H (rate 3)
7:00a.m. (07:00)
3:00 p.m. (15:00)
12:00 a.m. (00:00)
temp basal start time
1:05 p.m. (13:05)
5:05 p.m. (17:05)
temp basal stop time

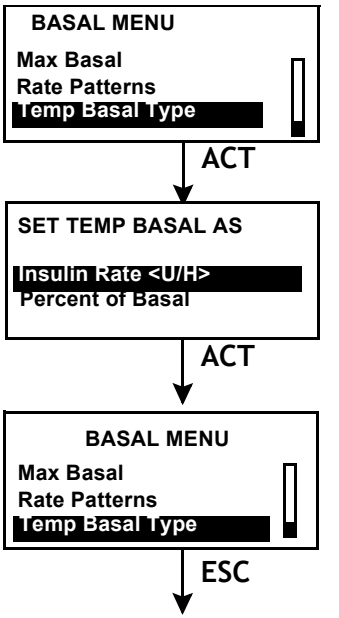
Selecting temp basal type

Your pump will remember the temp basal type setting. Once the type is set, you do not have to set it again. To select a temp basal type, do these steps:

1 Go to the BASAL MENU.

Main > Basal > Temp Basal Type

Select **Temp Basal Type** and press ACT.



2 The SET TEMP BASAL AS screen will appear. Select **Insulin Rate** or **Percent of Basal** and press ACT.

3 The screen will return to the BASAL MENU. The temp basal type is now set. Exit the menus.

NOTE - If your temp basal type is set to "Percent of Basal," changes to your basal rate are not allowed until after temp basal is completed or cancelled.

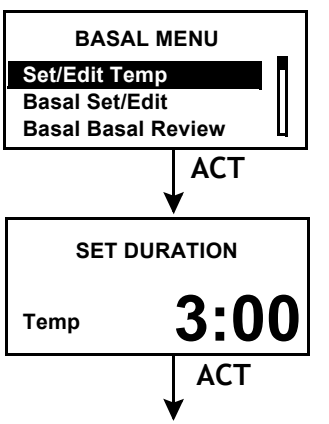
Deliver a temp basal

NOTE - A temp basal cannot exceed your programmed max basal rate.

1 Go to the BASAL MENU.

Main > Basal > Set/Edit Temp Basal

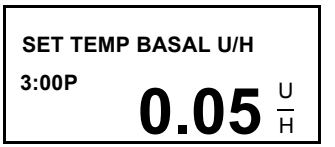
Select **Set/Edit Temp Basal** and press ACT.



2 The SET DURATION screen will appear. The duration* will flash. Enter the desired minutes or hours (30 minutes to 24-hours), then press ACT.

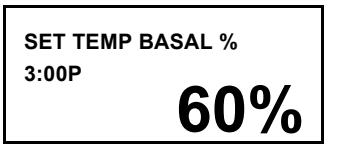
*NOTE - * Duration is the amount of time it will take for the pump to deliver the temporary basal.*

3 In the **SET TEMP BASAL** screen, the temporary basal rate will flash. Enter your temp basal rate, then press **ACT**.



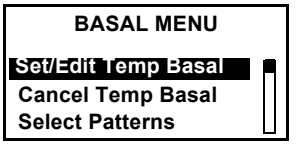
appears if Temp Basal Type is set to “Insulin rate (U/H)”

OR



appears if Temp Basal Type is set to “Percent of basal”

4 The BASAL MENU will appear. Your temp basal is now set and delivering. Exit the menus.

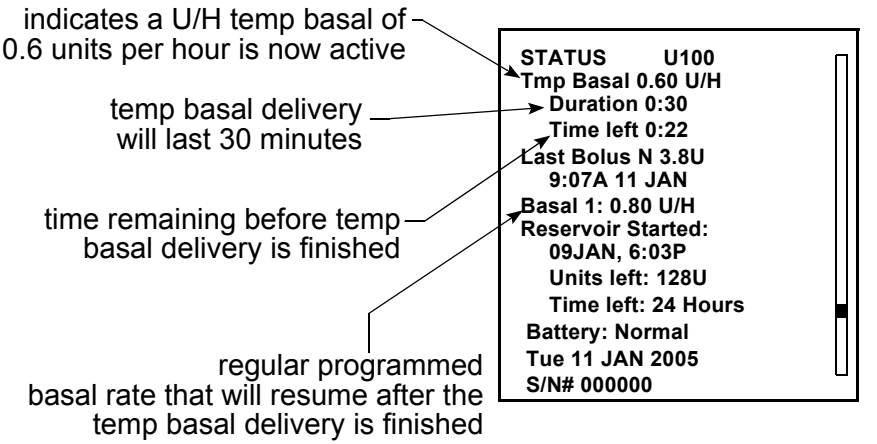


pump is in Special mode during a temp basal

Verifying temp basal delivery

Temporary basal information is available in the STATUS screen only.

During a temporary (temp) basal, the pump is in Special mode (an open circle appears). This open circle will remind you that a temp basal is active. Additionally, your pump will beep/vibrate three times every hour during delivery. During delivery, the STATUS screen will show the current temp basal information.


indicates a U/H temp basal of 0.6 units per hour is now active
temp basal delivery will last 30 minutes
time remaining before temp basal delivery is finished
regular programmed basal rate that will resume after the temp basal delivery is finished
STATUS U100
Tmp Basal 0.60 U/H
Duration 0:30
Time left 0:22
Last Bolus N 3.8U
9:07A 11 JAN
Basal 1: 0.80 U/H
Reservoir Started:
09JAN, 6:03P
Units left: 128U
Time left: 24 Hours
Battery: Normal
Tue 11 JAN 2005
S/N# 000000

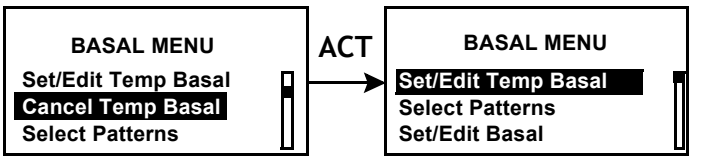
Canceling a temp basal

Use the cancel temp basal function in the BASAL MENU to cancel a temporary basal. This function immediately stops the temp basal and resumes the regular programmed basal delivery. To cancel a temp basal, do these steps:

1 Go to the BASAL MENU.

Main > Basal > Cancel Temp Basal

2 Select **Cancel Temp Basal** and press ACT to accept.



The screen will return to the BASAL MENU. Your temp basal is cancelled and the programmed basal is now active again. Exit the menus.

Example 1:
Temp Basal for a decreased temporary basal rate

Ramon and his friends got together for an unplanned game of soccer. Before using the pump, he was taking shots to manage his diabetes. Ramon experienced frequent low blood glucose reactions sometimes during, and very often after, he played games with his friends. Now that he is using his Paradigm pump, he can use the Temporary Basal Rate feature to help prevent low blood glucose. He simply programs his pump to temporarily deliver less basal insulin during the time that he is playing, and often for several hours after play, as well.
Ramon was able to determine how to set his Temporary Basal rates by frequent blood glucose testing, both during and after activity, and recording his results. The first time he tried using the pump, his healthcare professional advised him to program his pump to deliver ½ his usual basal rate for the amount of time that he was playing and for an hour after he was done. He made small adjustments of the temporary basal rate and the duration of time, each time he tried to use the feature. After several different attempts with similar activity for the same amount of time, (such as his soccer game that lasted 2 hours), he found a temporary basal rate that worked well for him.

Example 2:
Temp Basal for an increased temporary basal rate

Gail has had a cold with a cough for a couple of days. Because she is not feeling well, she tests her blood glucose more frequently. She finds that her blood glucose levels are running above target range before meals and she has needed several correction boluses to keep her blood glucose levels within her normal limits. Gail decides to use the Temporary Basal Rate to increase her basal rate during the day today. As advised by her healthcare professional, she will continue to check her blood glucose more frequently until she is feeling well.

Your turn:

Think of an activity where you might need to use a Temporary Basal Rate.

At what rate is your current basal rate running? _____

What Temporary Basal Rate would you try using at this time? _____

How long will you be active?_____

What duration will you set for the Temporary Basal Rate?_____

Test your blood glucose before and during activity and several times after as well. What are your blood glucose results?

Pre- activity_____

During activity_____

1 hour after activity_____

Several hours after activity_____

What Temporary Basal Rate changes will you make for the next time you try this?

Insulin pump therapy follow-up

We hope that you are now comfortable using the pump and your blood glucose values have improved through insulin pump therapy. Diabetes management requires much more than blood glucose control. You need to take care of your complete physical and mental health. This includes seeking treatment for any condition both directly related to and not related to diabetes. The following recommendations apply to general diabetes as well as insulin pump therapy follow-up. Remember, your healthcare professional is your best resource for successful diabetes management.

Recommended follow-up

Everyday

- Check BG 4-6 times a day and always before bed
- Test before driving and have a fast-acting carbohydrate with you when you drive
- If your BG is above 250 mg/dl (13.9 mmol/L) twice in a row, take an injection and change the infusion set

Every month

- Review DKA prevention guidelines
- Check 3:00AM BG at least once during the month
- Check 2-hour post-meal BG for all meals on a given day

Every 3 months

- Visit your healthcare professional, even if you feel well and check that your BG values are within target range
- Review your BG log and insulin pump settings with your healthcare professional
- Make sure you have an HbA1c test done

Laboratory tests

- Test for HbA1c four or more times a year
- Test for cholesterol, HDL, LDL, triglyceride yearly

- Test for microalbuminuria yearly

Every visit

- Blood pressure check
- Foot exam
- Review goals for BG, meal plan and exercise

Annually

- Dilated eye exam by a qualified ophthalmologist
- Annual flu shot
- Regular dental visits
- Nerve function tests
- EKG test over age 35
- Prostate exam for men, breast exam for women
- Diabetes education review
- Replace Glucagon Emergency Kit (new prescription from healthcare professional)

Alarm review

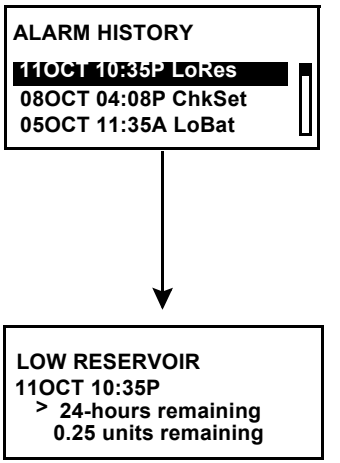
You can review alarms in the ALARM HISTORY screen. This screen shows up to 36 past alarms and/or errors. You can also review the details for each alarm when you are in the ALARM HISTORY screen.

1 Go to the ALARM HISTORY screen.

Main > Utilities > Alarm > Alarm History

2 Scroll through your past alarms.

3 If you want to review the details for an alarm, continue to the next section, “Alarm details.” Exit the menus if you are done.



Alarm details

4 In the ALARM HISTORY screen, select the alarm you want to review and press **ACT**. The details for that alarm will appear on the screen.

5 Press **ESC** to return to the ALARM HISTORY screen. Select another alarm to review, or exit the menus if you are done.

Setting your alert type

You can select the type of alert your pump uses (for alarms, special conditions and programming). You can select a vibrate (silent) alert, or an audible beep alert. There are three beep types: long, medium and short tones. The factory setting for this feature is beep-medium.

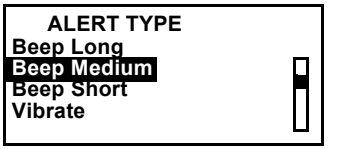
The vibrate alert type is disabled if you use the block feature, and vibrate must be set again once block is turned off. If your alert type is set to vibrate and you get a Low Battery alert, your pump will use the beep alert type instead to conserve battery power.

NOTE - Vibrate uses more battery power than the beep alert type and may shorten battery life.

1 Go to the ALERT TYPE screen.

Main > Utilities > Alarm > Alert Type

2 Select your alert type and press ACT. That alert type is now active. Exit the menus.



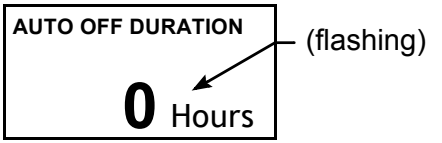
Auto-off

The factory setting for this feature is off (set to 0 hours). This is a safety feature that stops insulin delivery after a defined time period (from 1 to 24-hours). If the pump detects that no buttons have been pressed for the selected amount of time, insulin delivery will stop and an alarm will sound. You may choose to program this feature into your pump based on the numbers of hours that you usually sleep at night. Discuss what uses and settings are best for you with your healthcare professional.

1 Go to the AUTO OFF DURATION screen.

Main > Utilities > Alarm > Auto Off

2 Set the number of hours you want to set and press ACT.



NOTE - If you do not want to use the Auto Off feature, make sure the hour is set to zero (0).

3 The screen will return to the ALARM MENU. The Auto Off feature is now set. Exit the menus.

Low resv alert (Low reservoir warning)

Allows you to program the pump to sound an alert before your reservoir is empty. You can select one of these warning types:

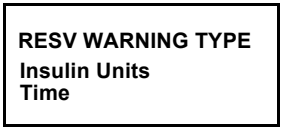
- A specified number of units that remain in the reservoir
- A specified maximum amount of time that remains before the reservoir will be empty

The factory setting for this feature is (20) insulin units.

1 Go to the RESV WARNING TYPE screen.

Main > Utilities > Alarm > Low Resv Warning

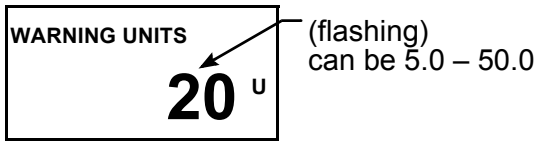
2 Select **Insulin Units** or **Time** and press ACT.



WARNING:	**When the pump detects a low reservoir condition during a bolus or prime delivery, the alert will go off after the delivery is finished. Make sure to check the volume of your reservoir to ensure enough insulin is available.**

For “Insulin units”:

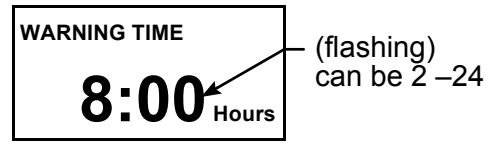
Enter the number of units you want remaining when the first warning will go off. Press **ACT**.



The pump will alarm first when the specified units remain, then again when half that remaining amount is used.

For “Time”:

Enter the amount of remaining time you want for the first warning. Press **ACT**.



The pump will alarm first when the specified time remains, then again one hour before empty.

NOTE - *If you use "time" as the low resv warning type and you deliver large boluses, the actual time remaining could be less than the warning time. "Time" in low resv warning types is intended to let you know if you will have enough insulin while you are sleeping.*

Review daily insulin totals

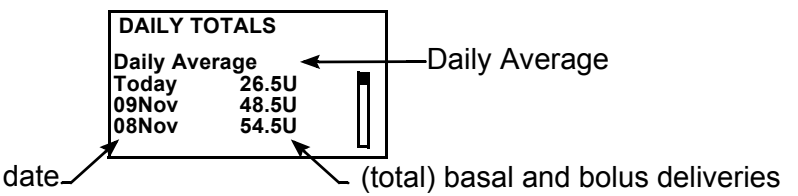
The DAILY TOTALS screen provides a day by day history of the total amount of insulin that delivered for the past 31 days. This screen includes all bolus and basal amounts delivered midnight to midnight for each of the past 31 days. The "Today" line in the DAILY TOTALS screen shows the amount of insulin you delivered so far that day.

NOTE - The insulin used to prime your pump is not included in the DAILY TOTALS screen. This amount is counted separately and shown in the PRIME HISTORY screen.

- **Why should I review my daily totals?**
  Comparing your daily insulin deliveries to your blood glucose records helps you and your healthcare professional identify your optimal daily insulin rate(s).
- **What is included in the daily totals?**
  Daily totals include all basal and bolus insulin deliveries, but they do not include insulin used for priming your pump. Each total reflects all basal and bolus insulin delivered for that day.

NOTE - If an asterisk (*) is displayed next to a total, that means the day for which the total is being reported was not a full day. Anything, such as a time or date change, that shortens a day an hour and twelve minutes or more will cause the asterisk to display.

- **Where is the daily totals screen?**
  Main > Utilities > Daily Totals



Pump data management

The pump data management feature allows you and your healthcare professional to view and manage your basal and bolus insulin delivery, BG data, and food intake with averages up to 31 days. You can view the details of each day individually. You can also average the data over a specified time period that you have selected up to (up to 31 days). This is done in the DAYS TO AVERAGE screen as explained in the next section.

To view the details of one day:

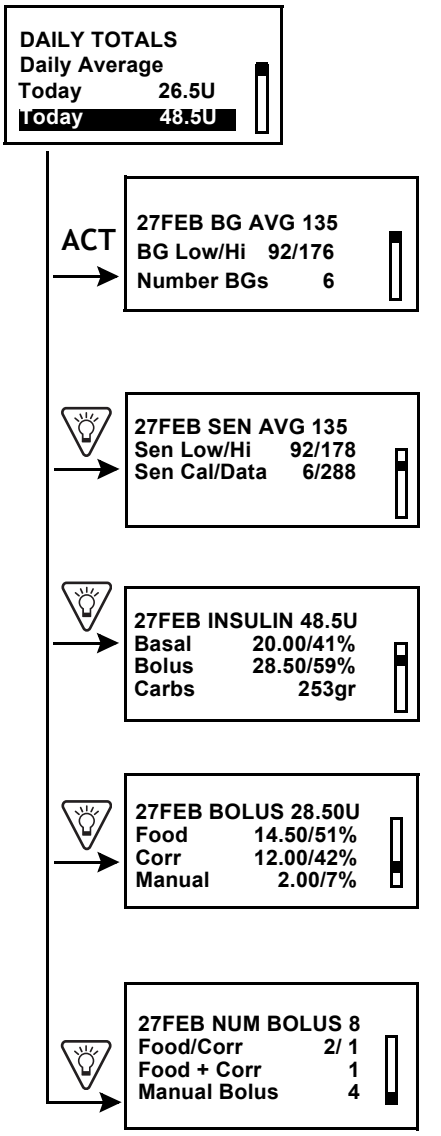
1. Select a date and press **ACT**. The following example shows the details for February 27th.

   Main > Utilities > Daily Totals > 27 FEB 48.5U

2. The BG AVG (Blood Glucose Average) screen is displayed. This screen shows:
   - Your average blood glucose for the day.
   - Your high and low blood glucose for the day.
   - Total number of blood glucose values you entered into the pump for the day. To view more data, press .

3. The SEN AVG (sensor average) screen is displayed. This screen shows:
   - An average of all sensor glucose readings received from the sensor during the selected day. The readings are in the selected blood glucose units (mg/dL or mmol/L).
   - The first line displays the lowest and the highest sensor reading received during the selected day.
   - The number of sensor calibrations (fingerstick blood glucose readings from a meter entered into the pump) during the selected day.

4. The INSULIN screen is displayed. This screen shows:
   - Total insulin delivered for the day.
   - Total Basal and Bolus insulin delivered for the day.
   - Total percentage of each (Basal and Bolus) delivered for the day.



- Total carbohydrates entered into the pump for the day (entered into the Bolus Wizard feature).

  To view more data, press .

5 The BOLUS screen is displayed. This screen shows:

- Total bolus insulin delivered for the day
- Total food bolus insulin delivered for the day and total percentage of food bolus insulin delivered for the day
- Total Corr (correction) bolus insulin delivered for the day and total percentage of corr bolus insulin delivered for the day
- Total man (manual) bolus insulin delivered for the day and total percentage of manual boluses delivered for the day. To view more data, press .

6 The NUM BOLUS (number of boluses) screen is displayed. This screen shows:

- Total number of boluses delivered for the day
- Total number of food only and correction only boluses delivered for the day
- Total number of food plus correction boluses delivered for the day
- Total number of manual boluses delivered for the day

To get back to the HOME screen, press four times.

Days to average

The DAYS TO AVERAGE screen allows you to choose the number of days to average. This example shows the previous 12 days as the number of days to be averaged.

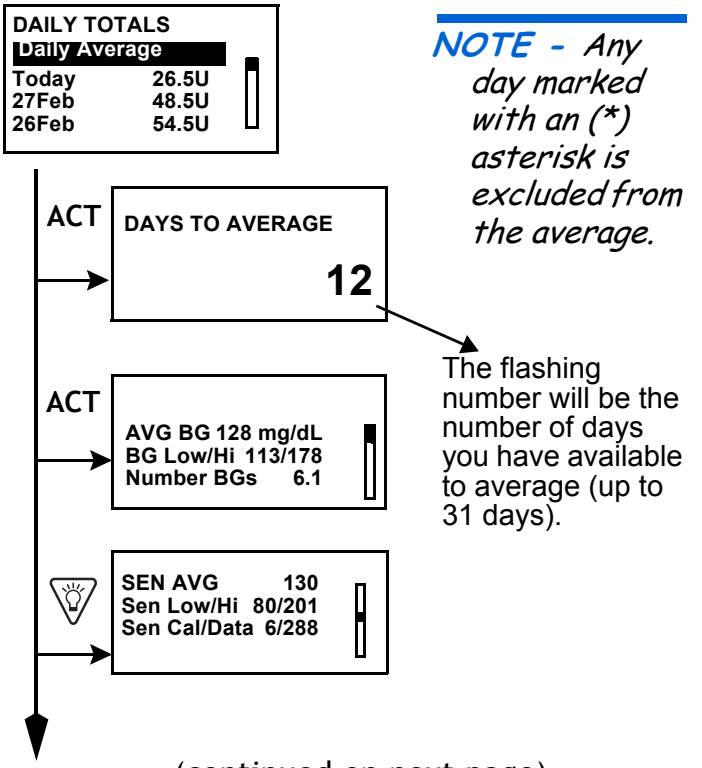
1 Select Daily Average and press **ACT**.

Main > Utilities > Daily Totals > Daily Average

2 The DAYS TO AVERAGE screen is displayed. Select the number of days you want to average by pressing ▲ and 💡. Press **ACT**.

3 The AVG BG screen is displayed. This screen shows:

- The average of all blood glucose values entered into the pump for the previous 12 days.
- The average high and low blood glucose values for the previous 12 days.
- The average number of blood glucose values entered into the pump per day for the previous 12 days. To view more data, press 💡.



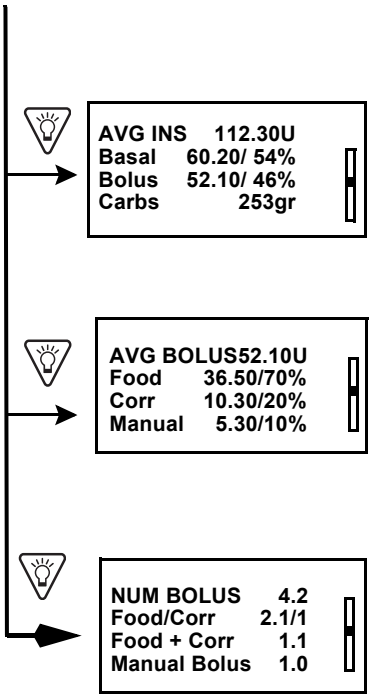
(continued on next page)

4 The SEN AVG (sensor average) screen is displayed. This screen shows:

- An average of all sensor glucose readings received from the sensor during the previous 12 days. The readings are in the selected blood glucose units (mg/dL or mmol/L).
- The first line displays the lowest and the highest sensor reading received during the previous 12 days.
- The number of sensor calibrations (fingerstick blood glucose readings from a meter entered into the pump) during the previous 12 days.

5 The AVG INSULIN (average insulin) screen is displayed. This screen shows:

- The average total insulin delivered per day for the previous 12 days.
- The average total basal and bolus insulin delivered and total percentage of basal and bolus insulin delivered per day for the previous 12 days.
- The average total carbs entered into the pump per day (entered into the Bolus Wizard feature) for the previous 12 days. To view more data, press .



6 The AVG BOLUS screen is displayed. This screen shows:

- The average total bolus insulin delivered per day for the previous 12 days.
- The average total food bolus insulin delivered per day for the previous 12 days and the total average percentage of bolus insulin delivered for the previous 12 days.
- The average total correction bolus insulin delivered per day and the total average percentage of bolus insulin delivered per day for the previous 12 days.
- The average total manual bolus insulin delivered per day and the total average percentage of bolus insulin delivered per day for the previous 12 days. To view more data, press .

7 The NUM BOLUS (number of boluses) screen is displayed. This screen shows:

- The average total number of boluses delivered per day for the previous 12 days.
- The average total number of food only boluses delivered per day for the previous 12 days.
- The average total number of correction only boluses delivered per day for the previous 12 days.
- The average total number of food plus correction boluses delivered per day for the previous 12 days.
- The average total number of manual boluses delivered per day for the previous 12 days.

To get back to the HOME screen, press ESC four times.

Personal reminders

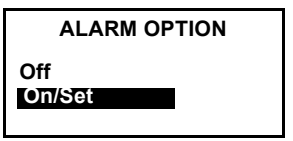
Alarm clock

The alarm clock is a feature that allows you to set daily reminders for various events (8 max). The factory setting for this feature is off. The alarm clock can be useful to remind you when to check your blood glucose, eat, bolus, etc. When the alarm clock goes off, the message, “ALARM CLOCK” will appear.

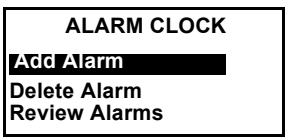
1 Go to the ALARM OPTION screen.

Main > Utilities > Alarm Clock

2 Select **On/Set**. Press ACT.

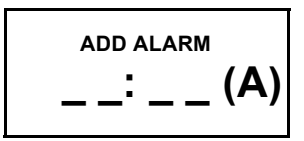


3 Select **Add Alarm**. Press ACT.



4 Enter the hour (flashing). Press ACT.

Enter the minutes (flashing). Press ACT.



(flashing)

5 Repeat step 4 to program additional alarm times. Exit the menus when you are done.

Remote control option

The factory setting for this feature is off. You may want to explore the remote option after you have become completely familiar with the basic functions of your pump. It is important that you consult with your healthcare professional before using this feature. Remote controls can be purchased from Medtronic MiniMed.

Refer to the remote control user guide for operating instructions.

NOTE - The use of RF (radio frequency) devices with the pump reduces battery life.

To use the remote control, these pump settings must be programmed:

- Remote Options = On
- Remote control ID code entered in pump (code is on back of remote)
- Easy Bolus = On

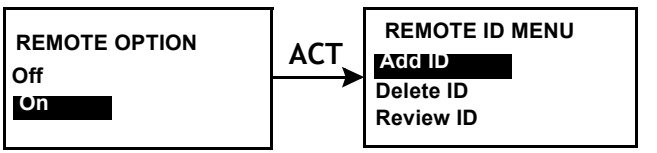
Turn on remote control option

WARNING:	**If there is a Low Battery condition, the pump will not receive signals from the remote. To ensure the pump communicates with the remote control, make sure the pump does not have a low battery. (Replacing the low battery with a new battery will restore remote control function.)**

1 Go to the REMOTE OPTION screen. Select **On** and press **ACT**.

Main > Utilities > Remote Options

2 The REMOTE ID MENU screen will appear. Add, delete or review your remote ID as described in the next section. Exit the menus if you are done.



Add, delete, review remote control IDs

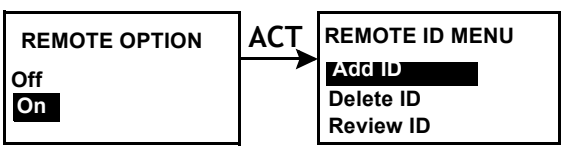
Each remote control has its own unique ID. Up to three (3) different remote control IDs can be programmed in your pump. The remote control programming screens are very similar to those for the meter. Make sure to select **Remote Options** (in the UTILITIES MENU) when programming your remote control.

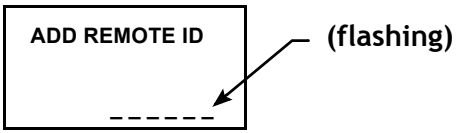
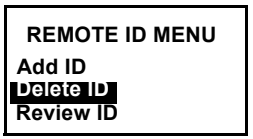
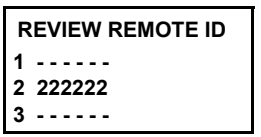
If you are not sure that your remote control ID is entered in your pump, check the REVIEW REMOTE ID screen. You have to turn on the remote option to add, delete or review the remote control ID(s) programmed in your pump.

1 In the REMOTE OPTION screen, select **On** and press **ACT**. The REMOTE ID MENU will appear.

2 Add, delete or review your remote ID(s) as desired.

NOTE - The remote control RF ID code is on the back of the remote control.



Add	Delete	Review
Select **Add ID** and press ACT. Enter each of the six ID numbers. Press ACT after each.  After you set the last number of the ID, the screen will return to the REMOTE ID MENU.	Select **Delete ID** and press ACT. Select the remote ID that you want to delete and press ACT. The selected ID is now deleted.  	Select **Review ID** and press ACT. The programmed IDs will show in the REVIEW REMOTE ID screen. 

3 Exit the menus when your are done.

Block feature

Block restricts access to pump programming. The factory setting for this feature is off. Block is an important safety feature if the pump user requires someone else to maintain complete control of pump operation. When Block is on, the remote control is used to deliver a bolus and suspend/resume the pump. Direct pump programming is limited to Suspend, Block, and Selftest. You can, however, still view status-type screens (STATUS, BOLUS and PRIME HISTORY, BASAL REVIEW, DAILY TOTALS, etc.). Discuss what uses and settings are best for you with your healthcare professional. (You can order the remote control from Medtronic MiniMed.)

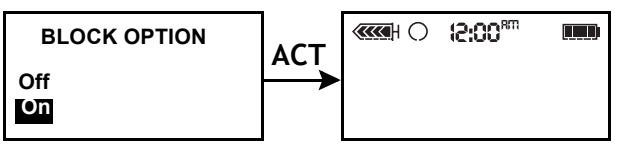
Turn Block on

NOTE - The vibrate alert-type is disabled when Block is on.

1 Go to the BLOCK OPTION screen.

Main > Utilities > Block

2 Select **On** and press ACT. The HOME screen will appear with an open circle. The Block option is now on and the pump is in Special mode. Exit the menus.



Example 1: Block
Nicholas is a very active toddler who wears a Paradigm pump. His parents don't want to worry that he will play with the pump and accidentally change his programmed settings. They simply activated the Block feature, and now, except for the Suspend and Selftest, no other features are active when using the pump buttons. When Nicholas needs a bolus, his parents and caregivers simply program it with the Remote Control.

Example 2: Block
Oscar is an elderly man with diabetes who needs assistance with all of his daily living activities. He needs his caregiver or family member to help him with his pump as well. To be sure that Oscar does not change any pump settings, his family programmed his Paradigm pump with the Block feature turned on. They use the Remote Control to give him his boluses when he needs them.

Lock keypad feature

Lock keypad prevents accidental pump keypad presses. The only button you can press is ESC to view the STATUS screen. The remote control can be used to give a bolus or put the pump into Suspend.

A locked kepad is automatically unlocked during the following:

- Battery insertion
- Alarms
- Alerts

To lock keypad

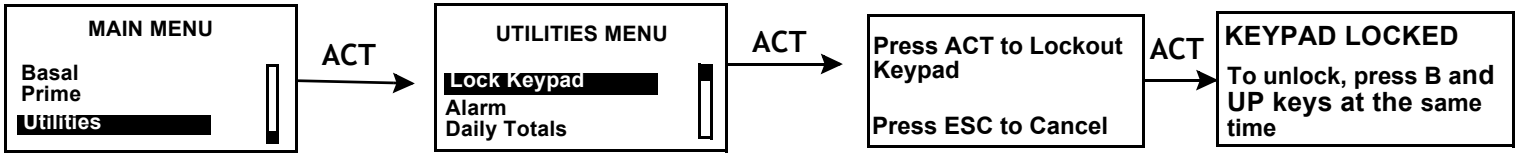
1 Go to the Lock Keypad screen

Main > Utilities > Lock Keypad

2 Select **Utilities**
Press ACT.

3 Select **Lock Keypad**
Press ACT.

4 Press ACT to lock keypad.



To unlock keypad

1 Press and B at the same time.

Selftest

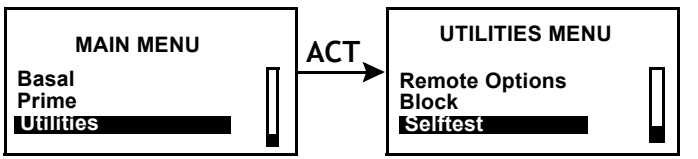
Selftest is a safety utility that allows you to check if your pump is operating properly. This self-diagnostic feature can be used for maintenance or to check your pump if it operates unusually. During selftest, your pump will automatically run internal tests, including a check for proper operation of the beep and vibrate modes. The selftest is additional to the routine tests that run independently while the pump operates.

Contact the Medtronic MiniMed 24 Hour HelpLine if any of the tests do not occur as described here.

NOTE - If the pump detects a condition such as low battery, the selftest will not finish. A message will appear to show the condition that caused the test to stop.

1 Go to the UTILITIES MENU. Select **Selftest** and press **ACT**.

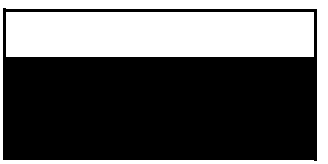
Main > Utilities > Selftest



2 As part of the selftests, the pump will do these tests:

NOTE - Periodically, you will hear beeps as different mechanisms in the pump are being tested.

a. Screen Test:
The screen will appear all black as shown here.



b. Selftest:
The pump will count down from 10.

c. Tone Test:
You should hear beeps.

d. Vibrate Test:
You will feel vibrations.

3 After the selftest is finished, TEST COMPLETE will appear on the screen. The screen will return to the UTILITIES MENU, then to the HOME screen.

User settings

WARNING: Do not clear your pump settings while it is connected to your body.

The user settings function allows you to save, restore, and clear all pump settings. You can also view a listing of the dates and times of all recent user settings operations you have done. The Save Settings feature lets you keep a set of pump settings that you can restore to your pump if it is cleared or you need to go back to these settings for any reason.

When you clear your pump, the pump settings are restored to the factory defaults, and you must either use Restore Settings, if you have saved a set of pump settings, or reprogram all your settings before you can use your pump again. The pump does not clear the internal pump memory.

CAUTION: Do not clear your pump settings unless directed by your healthcare professional or a Medtronic MiniMed representative. If you clear your pump settings, it will be necessary to reprogram all your personal pump settings as directed by your healthcare professional. Additionally, you will have to rewind your pump.

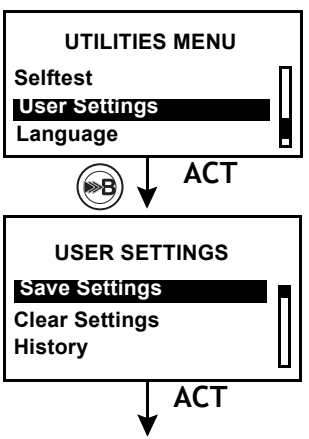
Save settings

Do these steps to save your current pump settings:

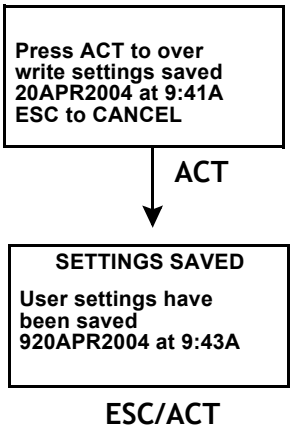
1 Go to the UTILITIES screen and highlight **User Settings.** Then, hold down ▸▸B and press **ACT**.

Main > Utilities > User Settings

2 The USER SETTINGS screen is displayed with **Save Settings** highlighted. Press **ACT**.



3 If this is the first time you have saved pump settings, go to step 4. If you have previously saved pump settings, a message displays, indicating the date of your last pump settings save. Read the instructions on the screen then press **ACT** to save your current settings (or press **ESC** to cancel the save).


Press ACT to over write settings saved 20APR2004 at 9:41A
ESC to CANCEL
ACT
SETTINGS SAVED
User settings have been saved 920APR2004 at 9:43A
ESC/ACT

4 The SETTINGS SAVED message displays to confirm that your current pump settings have been saved. Exit the menus.

Restore settings

Do these steps to restore the most recent pump settings you have saved to your pump.

NOTE - Regardless of the basal pattern you saved or the current one, Restore Settings always sets patterns to Standard.

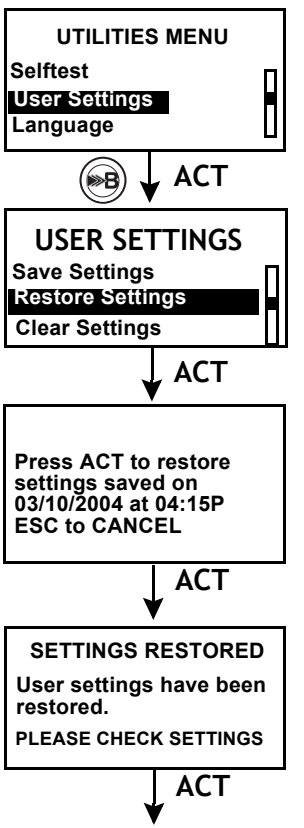
1 Go to the UTILITIES screen and select **User Settings.** Then, hold down B and press **ACT**.

Main > Utilities > User Settings

2 The USER SETTINGS screen is displayed. Select **Restore Settings** and press **ACT**.

3 A message displays, giving you the option of restoring the pump settings that were saved on the given date and erasing the ones currently on your pump. Read the instructions on the screen then press **ACT** to restore the settings. (You can press **ESC** to cancel the restore.)

4 The SETTINGS RESTORED message displays to confirm that your current pump settings have been replaced with the pump settings you had saved on the given date. Exit the menus and check your pump settings to verify the restore.



Clear settings

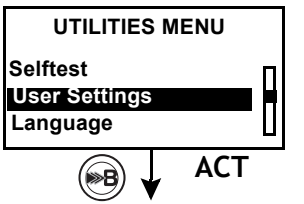
Take the following steps only if you want to clear your pump to factory default settings.

WARNING: Do not clear your pump settings while it is connected to your body.

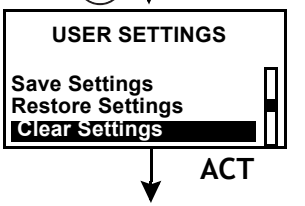
CAUTION: Do not clear your pump settings unless directed by your healthcare professional or a Medtronic MiniMed representative. If you clear your pump settings, it will be necessary to reprogram all your personal pump settings as directed by your healthcare professional. Additionally, you will have to rewind your pump.

1. Go to the UTILITIES screen and select **User Settings.** Then, hold down B and press **ACT**.

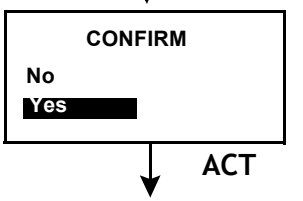
   Main > Utilities > User Settings



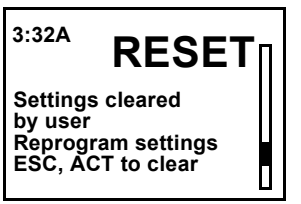
2. The USER SETTINGS screen is displayed. Select **Clear Settings** and press **ACT**.



3. A CONFIRM message displays, giving you the option of clearing your pump settings or not. Select **YES** and press **ACT** to clear the settings. (You can press **ESC** to cancel.)



4. You will see a RESET screen, and then the pump will go through various screens while it restarts. After the pump clears all of your settings, the screen will go to the TIME/DATE SETUP screen.



5. Reset the time and date as described in “Setting the time and date” on page 21.

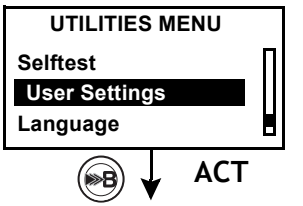
6. After you set the time and date, you must rewind your pump. Refer to “Rewinding your pump” on page 45 for instructions. Remember, all your settings have been cleared and you must either restore or reprogram all your settings.

History

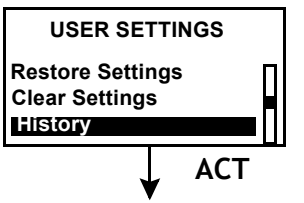
If you want to view a listing of the dates and times of all recent User Settings operations you have done on your pump, such as saves and restores, take the following steps:

1 Go to the UTILITIES screen and select **User Settings.** Then, hold down (B) and press **ACT**.

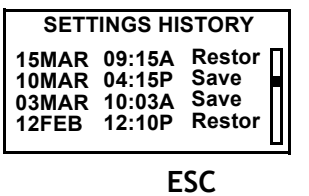
Main > Utilities > User Settings



2 The USER SETTINGS screen is displayed. Select **History** and press **ACT**.



3 The SETTINGS HISTORY screen displays, giving you a list of all the dates and times of your most recent User Setting operations. Use the scroll bar to view the entire history. When you are done looking at the history, press **ESC** to exit the menu.

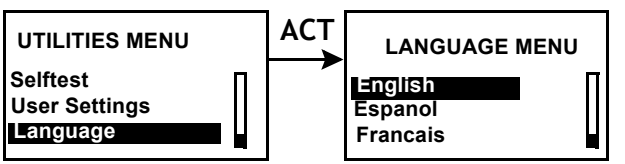


Language setting

The language shown on the pump screens can be changed. Some languages will not be available on all pumps. To change the language for your pump, do these steps:

1 Go to the UTILITIES screen, select **Language** and press **ACT**.

Main > Utilities > Language



2 The LANGUAGE MENU Screen is displayed. Select your language and press **ACT.**

3 The language setting is now changed. Exit the menus.

Troubleshooting

This Troubleshooting chapter is designed to help you understand the messages that your pump is giving you when you get an alarm or an alert message. The procedures in the beginning of this chapter are to be used when you get specific alarms or cover a likely condition that might happen. A list of alarms is provided at the end of this chapter.

NOTE - It is recommended that you read your warranty statement included with your pump for information on what is covered during your warranty period.

My pump has a no delivery alarm...

When a "No Delivery" alarm occurs, it means the pump is working correctly but it has detected that something is preventing insulin from being delivered. Your pump is not broken. Do the following steps:

1. Check your blood glucose and take an injection if needed.
2. Make sure that there is insulin in your reservoir and the tubing is not kinked. If these are all right, go to step 5.
3. If necessary, unkink tubing. Clear the alarm by pressing **ESC** and **ACT**. A screen will appear with two choices: **Resume** and **Rewind**. Select **Resume**.
4. If the reservoir is empty, clear the alarm by pressing **ESC** and **ACT**. Select **Rewind** and change your reservoir and infusion set per the instructions in chapter 4, "Starting on insulin."
5. Continue troubleshooting by disconnecting at the quick-disconnect, and set a 10 unit Fixed Prime.
6. Does insulin come out of the needle at the quick-disconnect?
   a. If yes, change your entire infusion set per the instructions in chapter 4, "Starting on insulin."

      If NO insulin comes out of the needle at the quick-disconnect, or you receive another No Delivery alarm, call the 24 Hour HelpLine.

   b. Your pump remembers the last fixed prime you deliver, so make sure to set your fixed prime amount back to your usual setting. To do this, deliver another fixed prime in your normal amount (the amount specified in your infusion set instructions).
7. Monitor your blood glucose closely.

8. If you followed these steps and you are still receiving a No Delivery alarm, call the 24 Hour HelpLine.

What happens if I leave the battery out too long?

If you leave the battery out too long (more than five minutes), you may receive a BATT OUT LIMIT alarm message when you install the new battery. Do the following steps:

1. Set your pump clock to the correct time, date, and year.
2. Check to make sure that all your settings, such as basal rate, are set as desired. If need be, reapply your last saved settings to the pump by using the Restore Settings option under User Settings in the UTILITIES MENU as described in chapter 8 (you can only use this option if you have previously saved your pump settings).
3. Check the ALARM HISTORY screen and the STATUS screen for any alarms and/or alerts that may still need attention.

If you leave the battery out for more than three or four days, you may receive an A17 alarm and several A47 alarms when you install a new battery. Do the following steps:

1. Clear all A17 and A47 alarms.
2. Set your pump clock to the correct time, date and year.
3. Check to make sure that all your settings, such as basal rate are set as desired. If need be, reapply your last saved settings to the pump by using the Restore Settings option under User Settings in the UTILITIES MENU as described in chapter 8 (you can only use this option if you have previously saved your pump settings).
4. Check the ALARM HISTORY screen and the STATUS screen for any alarms and/or alerts.

Why doesn't my pump battery last very long?

A short battery life does not mean that something is wrong with your pump. Battery life in your pump is variable and based on the conditions below:

- The brand of battery you use (we recommend Energizer).
- The storage and /or handling of the battery before use (avoid high or low temperatures).
- The usage of pump in cold temperatures; this may shorten the battery life.
- The usage of your pump, such as how often the buttons are pushed, the number of alerts/alarms and set changes.
- The amount of insulin the pump is delivering.
- The usage of some features. The backlight, vibrate, remote control and/or meter options decrease battery life.

What is a CHECK SETTINGS alarm?

This alarm occurs after an E alarm or after you clear your pump. It is advising you to make sure that all your settings are correct. A CHECK SETTINGS alarm occurs after any of these actions:

- All user settings were cleared (set back to their defaults) because there was an E-error alarm.
- The “Clear Settings” function was performed.
- After you rewind when practicing without a reservoir when your first get your pump. In this case, it is just a reminder to make sure all your settings are programmed before you begin using the pump with insulin.

My screen appears distorted

The screen may appear distorted or have a “rainbow” appearance if you are wearing polarized sunglasses, are in bright sunlight, or in extreme high or low temperatures. If your screen appears distorted:

- Take off your sunglasses.
- Move into the shade.
- Make sure your pump is not in direct heat (i.e., next to a heater) or cold (worn on the outside of your clothing on a very cold day).

Do not return the pump: this is a normal property of this type of screen on any device.

I cannot get out of the priming loop

1. Is there a filled reservoir in the pump?
   - If no, place a filled reservoir or shipping cap in the pump.
   - If yes, make sure you are disconnected from the pump.
2. Hold the **ACT** button until the second set of beeps and the numbers appear on the screen.
   - If yes, your pump is okay, go to step 4 in the section “Manual prime” in chapter 4 to finish the manual prime.
   - If you did not hear a second set of beeps or numbers did not appear on the screen, change your infusion set and repeat this step.
3. If you still do not hear the beeps and see the numbers count up on the screen, call the 24 Hour HelpLine.

The pump is asking me to rewind

This is normal after any of the following:

1. Any E-alarms
2. Clear Settings function
3. No Delivery Alarm (during the Prime sequence)

My bolus stopped

The Bolus Stopped error can occur if the battery cap is loose or the pump was bumped or dropped during a bolus. It can also happen if the pump receives a static shock. As a safety measure, the pump stops the bolus when this happens.

1. If you dropped your pump, visually inspect it to make sure that it is not damaged in any way.
2. Review your bolus history and reprogram the remaining bolus, if needed.

My pump buttons are not acting right during a bolus

If the , or buttons are pressed and held down while a bolus is being delivered, the screen will freeze on that amount. Once the button is released, the units will ramp up to the amount delivered so far. Pressing and holding down the button will not stop the delivery of a bolus.

My pump won't display my BG reading from my meter

1. Make sure that you are using the correct linked meter. Your pump will communicate with this meter only.
2. Make sure your meter is on (set to "snd") and working correctly.
3. Make sure the meter option in your pump is set to **On** and you have set the meter ID number correctly on the pump.
4. Make sure your pump does not have a Low Battery alert condition.
5. Make sure the meter is within 4 feet (1.2 meters) of the pump without anything in between such as another person, a wall, etc.
6. Make sure there is no RF (radio frequency) interference from other electronic devices that could prevent communication. These devices can include some cell phones, cordless phones, televisions, computers, radios, other Paradigm pumps meters and pump remote controls. To restore communication, simply move away from these other types of devices, or turn them off.
7. Your pump will not show another reading. Make sure the pump is idle and the HOME screen is blank.

8 If your pump still does not receive your BG reading from the linked meter, use the up/down buttons to manually enter your BG (in the ENTER BG screen).

I dropped my pump

Take care to protect your pump from being dropped.

1 Check that all connections are still tightly in place.

2 Check the LCD, keypad and pump case for cracks or damage.

3 Check infusion set, including the tubing connector and tubing for cracks or damage.

4 Review the status screen, basal rates and other pump settings.

5 Perform the Selftest procedure located in the UTILITIES MENU.

6 Call the Medtronic MiniMed 24 Hour HelpLine for assistance.

I submerged my pump in water

Your pump is designed to resist accidental contact with water. Do not submerge in water during bathing, swimming, or other water activities.

1 Pat the outside of the case until dry.

2 Open the reservoir compartment and check the compartment and reservoir for water. If wet, dry it completely within ten (10) minutes of exposure to water. Exposure to liquids, including water or insulin can corrode the mechanism.

3 Dry the reservoir completely—do NOT place a wet reservoir in the pump.

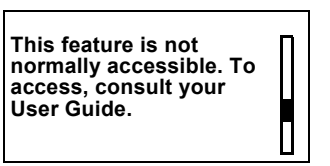
4 Do not use hot air to dry your pump. This may damage your pump's internal electronics.

5 Check the battery compartment and the battery—if wet, let them dry completely before using the pump.

6 Perform a selftest.

I cannot get to the User Settings menu

If you do not hold down while pressing **ACT** when you have User Settings highlighted, you will see the following screen:

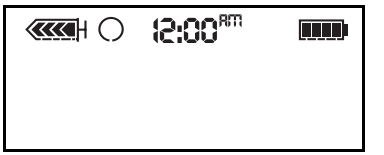


1 Go to the UTILITIES screen and highlight **User Settings.** Then, hold down and press **ACT.**

2 See “User settings” on page 117 for information about the menu options.

Alert conditions

Your pump has a sophisticated network of safety checks and systems. If it detects an unusual condition that requires your immediate attention, it will beep or vibrate periodically to alert you. The pump will go into Special mode (an open circle will display), and the backlight will illuminate.



- Dual Wave or Square Wave bolus delivery
- Pattern A or B is active
- Temp basal delivery
- Block feature is on
- Low reservoir
- Low battery

- **Why are alerts important?**

  Your pump monitors activities and will alert you if a Special mode is active. Some alerts are a normal part of pump therapy, such as an active temporary basal. There are alerts that indicate a condition that is outside normal pump activity. For example, your pump notifies you with an alert when you need to replace the reservoir (LOW RESERVOIR) or replace your pump battery (LOW BATTERY).

What to do

When your pump beeps or vibrates notifying you that an alert condition exists:

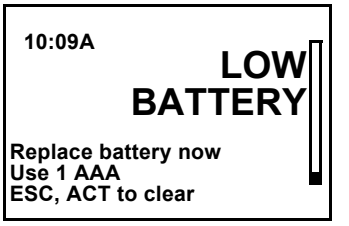
1. Read and follow the instructions on the screen. Press **ESC, ACT** to silence an alert.
2. Check the STATUS screen to determine what caused the alert.
3. If the condition is due to a low battery, replace the battery.
4. If the condition is due to a low reservoir, monitor the reservoir volume frequently and change the reservoir when appropriate. Make sure you have a new reservoir, infusion set and vial of insulin with you.

Low reservoir alert

You can program the pump to sound an alert when either a specified number of units remains or a specified amount of time remains before the reservoir will be empty.

Low Battery alert

If you get this alert, DO NOT go to sleep without replacing the battery. The backlight, Remote control and meter functions are disabled during a Low Battery condition. If the alert type is set to “vibrate,” the pump will change to the audio alert “beep-medium.” Clear (**ESC**, **ACT**) this alert before you replace your battery.



Alarms

Your pump has a sophisticated network of safety checks and systems. If the safety network detects anything unusual, your pump notifies you of conditions that require your immediate attention. The backlight illuminates the pump screen and the alarm/alert message displays on the screen.

NOTE - The STATUS screen shows any alarms and alerts that are active.

- **Why are alarms important?**

  Your pump monitors activities and notifies you if there is an unusual pump status or your attention is required. When an attention alarm is active, INSULIN DELIVERY IS STOPPED and immediate operator interaction is required.

If the vibrate mode is on, all alarms and alerts start as vibrations and then change to beeps. For your safety, if there is no response after ten (10) minutes, the beeps change to a siren. The siren continues every minute until the alarm is cleared.

when a solid circle appears, follow the instructions on the screen.

What to do

When an alarm is triggered, the pump goes into Attention mode and an alarm message shows on the screen. The pump then defaults to the HOME screen. Do these steps when you get an alarm:

1 **View the alarm:**
From the HOME screen, press any button to see the alarm message.

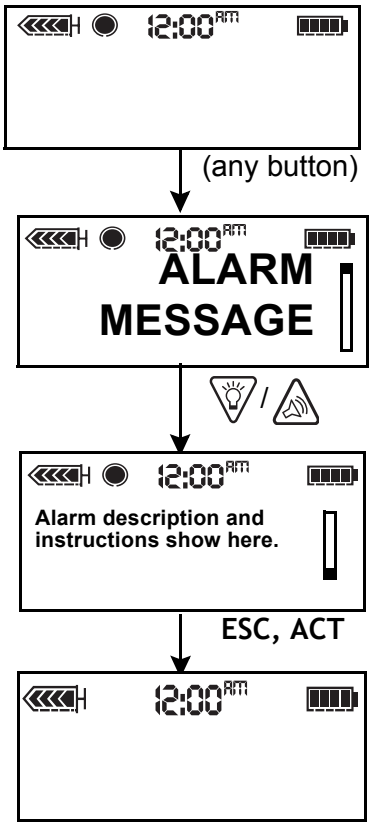
2 **Read all of the alarm text**. There are instructions on how to fix the alarm condition. (Press to read more text, if available.)

3 **Clear the alarm:**
Press **ESC** then **ACT** after you read the alarm instructions.

4 The HOME screen appears.

5 **Follow the instructions** that appeared with the alarm to fix the alarm condition.

6 **Check your settings** (i.e., time/date, basal, etc.) to make sure they are correct.

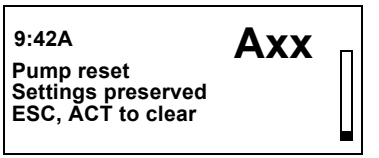


Alarm conditions

Alarms put the pump in “Attention” mode.

A (Alarm)

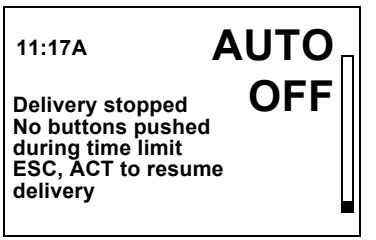
This alarm shows an “A” followed by two numbers. A-alarms cause all insulin delivery to stop. Your pump settings are retained. If this alarm repeats often, call the Medtronic MiniMed 24 Hour HelpLine for assistance.



XX indicates the alarm number

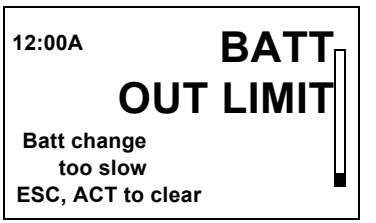
Auto off

Alerts you that no buttons were pressed during the time limit you set for the AUTO OFF DURATION feature, and so insulin delivery has been stopped.



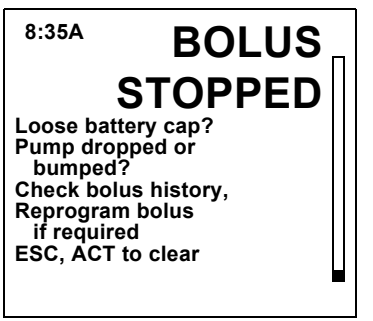
Batt out limit

Occurs if the battery has been out of the pump for more than five minutes. Verify that the pump time and date are correct. If not correct, go to the UTILITIES MENU and reset the date and time.



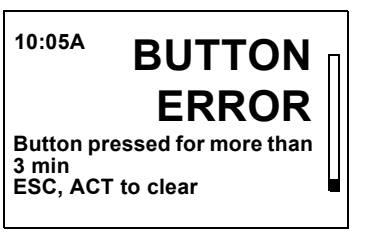
Bolus stopped

If this alarm occurs, it is very important to check bolus history to review how much of the bolus was actually delivered. If necessary, reprogram a bolus with the amount not yet delivered.



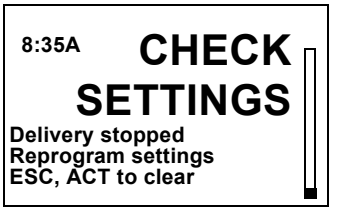
Button error

This error occurs if a button has been continually pressed for more than 3 minutes.



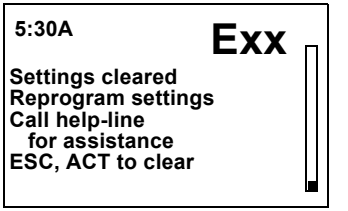
Check settings

When this alarm is active, you should check and/or reprogram your pump settings, including the time/date.



E (Error)

After receiving this alarm, note the error number then call the Medtronic MiniMed 24 Hour HelpLine for assistance. An error alarm will show an "E" followed by two numbers. E-alarms cause all insulin delivery to stop, the pump resets, and all your settings are cleared.



XX indicates the error number

Empty reservoir

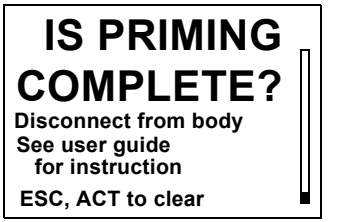
There is no insulin in the reservoir. Change the reservoir immediately.

Failed batt test

The pump tests the voltage of each battery installed. This test ensures a battery with low voltage is not used. If the battery does not have enough voltage, this alarm will occur. The pump will not function and the battery must be replaced. (Always make sure that you install a NEW battery into the pump.)

Is priming complete?

If you manually prime your pump with more than 30u insulin, this message appears. Press **ESC**, **ACT** to clear the message. If manual prime is complete, press **ESC**. If the manual prime is not complete, press and hold **ACT** until manual prime is complete.

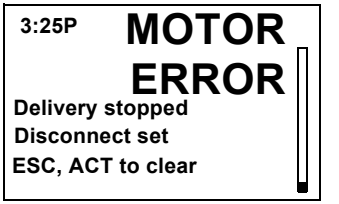


Max delivery

This alarm alerts you when you have taken more insulin than expected based on maximum bolus and maximum basal rates.

Motor error

Insulin delivery has stopped. This alarm occurs if your pump detects a motor error.

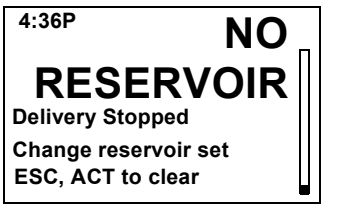


No delivery

Insulin delivery has stopped. This alarm occurs if your pump detects a blockage.

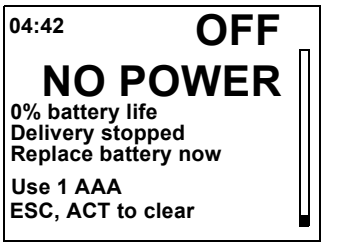
No reservoir

The reservoir is not inserted correctly or no reservoir has been inserted.

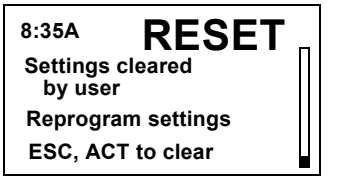


Off no power

The battery is dead. Replace battery immediately. Follow the directions on the screen. Check to make sure that the time is correct on the screen. Reset the time if necessary.



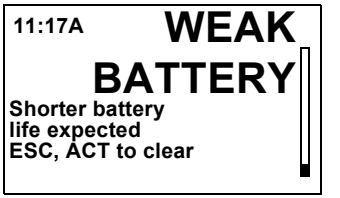
Reset



The Reset alarm triggers when pump settings are cleared because of one of these reasons:

- Pump settings were cleared (Clear Settings function) and settings have not been reprogrammed.
- A download attempt from the PC is incomplete. (The download function is applicable to the optional software feature. Refer to the software user guide for more information.)

Weak Battery



The pump tests the voltage of each battery installed. If the battery voltage is less than full strength, this alarm may occur. The pump will operate normally, but the battery life will be shorter than expected.
Always make sure to install a NEW battery in the pump.

Pump maintenance

It is recommended that you read your warranty statement included with your pump for information about what is covered during your warranty period.

Battery

The Paradigm pump uses a AAA battery. As a safety measure, Medtronic MiniMed has designed the pump to only accept a NEW battery. If you insert a used battery, the "Failed batt test" alarm may be triggered. Refer to the section "Install battery" in chapter 2 for instructions.

The use of cold batteries causes erratic pump behavior. To prevent this, do not use batteries that have been in cold storage (i.e., in the refrigerator or your car in the winter). It takes several hours for these batteries to warm to room temperature.

Certain features on the pump use a lot of battery power. Your battery will need to be replaced more frequently if you use these features:

- Remote control
- A linked meter
- Backlight
- Vibrate alert type setting

CAUTION: It is recommended that you use a AAA Energizer battery. Do not use a rechargeable or carbon zinc battery in the pump. Do not remove the battery unless you are changing your battery (installing a NEW battery). Replace it within five (5) minutes. If not replaced within five (5) minutes, the screen may display an alarm message. Follow the instructions in the message and make sure the time and date are set correctly. Check that the battery is inserted correctly. If the battery has been installed backwards, remove the battery and install it properly.

Storage

If you have to remove and store your pump, it is recommended that you store it with the battery in place. Keep a record of your current basal rates. To preserve battery life, reset the basal rates to 0 (zero), turn off the remote and meter options, and set the Auto-off to dashes or zeroes.

Cleaning your pump

1. Use only a damp cloth and mild detergent mixed with water to clean the outside of your pump.
2. Rinse the pump with a clean cloth, dampened with clean water.
3. Dry with a clean cloth.
4. Never use organic solvents, such as lighter fluid, nail polish remover, or paint thinner to clean your pump.
5. Keep the reservoir compartment and battery compartment dry and away from moisture.
6. Do not use any lubricants with your pump.
7. Use a 70 percent alcohol wipe to disinfect your pump.

Pump specifications

This section provides detailed information on specifications related to your pump. The safety features of your pump are individually listed and described.

Alarms and error messages

Indicators: audible tone (beep) or vibration (silent)
All alarms and errors show messages on the pump's screen and provide instructions on what to do. Unresolved alarms will escalate to siren mode for added safety.

Alarm history

Maximum records shown: 36

Backlight

LCD (Liquid Crystal Display) type
Time-out: 30 seconds

Basal

Delivery: 0.05 – 35 units/hour (maximum units: 35/hour)
Factory maximum setting: 2.0 units/hour
Increments: 0.05 units
3 patterns maximum, each with 48 rates

BG target

Maximum targets: 8

range:60 – 250 mg/dL (3.3 – 13.9 mmol/L)

warning limits:less than 90 or greater than 140 mg/dL (less than 5.0 or greater than 7.8 mmol/L)

Bolus delivery

Insulin delivered/stroke	Fluid delivered/stroke	Time between/delivery strokes	Delivery rate (per minute)
0.05u	0.5 µL	2 seconds	1.5u

Bolus history

Maximum records shown: 24

Bolus units

Increments: 0.1 units

Bolus Wizard feature

(see end of this section for information)

Carb ratios

Maximum ratio settings:	range:	warning limits:
8	3 – 150 grams/u 0.1 – 5.0 u/exch	less than 5 or greater than 50 grams/u less than 0.3 or greater than 3.0 u/exch

Carb units

The food entry when using Bolus Wizard feature

grams: 0 – 300 (increments: 1 gram)

exchanges: 0.0 – 20 (increments: 0.5 exch)

Daily totals

Maximum records shown: 31 days of data, maximum display: 999.95 units/day. Accuracy: +0/–0.05 units

Default screen

The HOME screen. For most screens, if no buttons are pressed for 30 seconds, the pump returns to this screen.

Pump motor

The pump motor has a unique, patented design with an integrated safety check system. The system delivers in precise increments.

Dual Wave bolus

Delivers a Normal bolus followed by a Square Wave bolus (limited by maximum bolus).

Easy bolus

Features programming using audible tones (or vibrate pulses) in user-determined increments. Beep mode range: 0 to maximum bolus; Vibrate mode range: 0 to 20 steps or maximum bolus, whichever comes first.
Default step increment: 0.1 unit
Step size < maximum bolus.
Adjustable step size: 0.1 to 2.0 units per step.
Accessible from the remote control or pump buttons.

Infusion pressure

Maximum infusion pressure and occlusion pressure: 13.7 PSI (94,46 kPa).

Insulin sensitivity

Maximum settings: 8
Factory default: 50 mg/dL (2.8 mmol/L)

Range:10 – 400 mg/dL (0.5 – 13.9 mmol/L)

Warning limits:less than 20 or greater than 100 mg/dL (less than 1.1 or greater than 5.6 mmol/L)

Low resv (reservoir) warning

Values are based on displayed amount, not actual amount.

Time:	2 – 24-hours, and @ 1:00 hour before empty	08:00 hours (default when time is selected)
Units:	5 – 50 units, and @ 1/2 amount remaining	20 units (factory default)

Meter value

The BG measurement received from the linked meter. Appears in the ENTER BG screen during bolus programming. Appears on the screen when the pump is idle at the HOME screen.
Expiration: 12 minutes;
Range: 20 – 600 mg/dL (1.1 - 33.3mmol/L)
Maximum meter ID entries: 3

Normal bolus

Range 0.1 – 25.0 units of insulin (limited by maximum bolus setting).

Occlusion detection

When occlusion is detected, the “no delivery alarm” will occur. The occlusion alarm is triggered by an average of 2.77 units of “missed” insulin. This table shows occlusion detection for 3 different situations when using U100 insulin.

	522/722		
Rate	**Minimum time before alarm**	**Typical time before alarm**	**Maximum time before alarm**
bolus delivery (1.5 u/minute)	92 seconds	116 seconds	162 seconds
basal delivery (1.0 u/h)	2.2 hours	3.09 hours	4.47 hours
basal delivery (0.05 u/h)	37.4 hours	59.2 hours	87 hours

Percent temp basal

Default value: 100% of basal programming

Power supply

The pump is powered by a standard 1.5 V AAA alkaline battery, size E92, type LR03 (Energizer brand recommended).

Prime function

Fixed prime: 0.1 – 25.0 units (limited by maximum bolus).
Manual prime limit: warning at 30 units, then at each 10 units thereafter.
Fill rate: 1 to 5 units/second.
Prime insulin is not counted in daily totals but is recorded separately in the prime history.

Prime history

Maximum records shown: 20 (manual and fixed)

Program safety checks

Maximum infusion with single fault condition: 0.0 units

Pump size

The dimensions of the pump are approximately:

522 Pump:	2.0 x 3.0 (2.8 at the battery cap) x 0.75 inches [5.1 x 7.6 (7.1 at the battery cap) x 2.0 cm]
722 Pump:	2.0 x 3.7 (3.5 at the battery cap) x 0.75 inches [5.1 x 9.4 (8.9 at the battery cap) x 2.0 cm.]

Pump weight

522 and 722 pump: 522 pump approximately 100 grams (with battery installed), 722 pump approximately 108 grams (with battery installed).

Remote control

Uses radio signals to allow users to program Normal boluses or to suspend/resume their pumps.

Reservoir

The user-filled reservoir is made from impact-resistant, insulin-compatible polypropylene.
522 Pump volume: up to 176 units of U100 insulin
722 Pump volume: up to 300 units of U100 insulin

Square Wave bolus

Delivers bolus insulin over a duration of 30 minutes up to 8 hours (limited by the max bolus setting).

Temporary (temp) basal rate

Allows you to temporarily change the current basal rate for a duration of 30 minutes up to 24-hours (limited by maximum basal setting). The temp basal rate can be set to either Percent of basal or Insulin rate.

Time and date screen

12-hour or 24-hour formats. Pump users set the time/date, including the year, month and day. The date is included in the STATUS screen information. Time always appears on the top of the screen.

Status screen

Item	When	What
Alarm Clock:*	Appears if scheduled to alarm	Time set is displayed
Auto-off:	Appears if enabled	X HR
Basal pattern information:	If active	Pattern A or B
Battery Status:	Always appears	Normal, Low, Off
BG meter value: (most recent BG value received)	Appears if BG meter is enabled	XX.Xmg/dL time and date received
BG Reminder:*	If enabled	Time remaining before BG reminder is set to go off H:MM h (if less than 1 hour, 0:XXh where XX is minutes remaining)
Block:	If active	ON
Current date:	Always appears	
Current temp basal information:	If active	Rate (units per hour), duration, time remaining
Last bolus information:	Type and units delivered Delivery time and date	'S'-Square, 'N'-Normal, 'D'-Dual
Meter Off, Low Batt:	Appears if enabled but battery is low or empty	
Meter On:	Appears if enabled	
Pump model number:	Always appears	
Remote On:	Appears if enabled	
Reservoir started:	Always appears	Date, time, units left, time left
Serial number:	Always appears	
Software version:	Always appears	
Standard basal delivery data:	Always appears	Current basal rate (basal 1, basal 2, etc.)
Status of pump	i.e., Rewind, Suspended, Low Reservoir, Set Time, etc.	
Time	Always appears	

**If all Reminders and Alarm Clock are enabled, only the reminder nearest to alarming will appear in the STATUS screen.*

Bolus Wizard feature specifications

There are three different formulas the Bolus Wizard feature uses to estimate a bolus, depending on your current BG:

1 If current BG is greater than your High Target BG

$$\text{food estimate} = \frac{\text{food}}{\text{carb ratio}} + \frac{\text{current BG} - \text{High BG Target}}{\text{insulin sensitivity}} - \text{active insulin}$$

2 If current BG is less than your Low Target BG

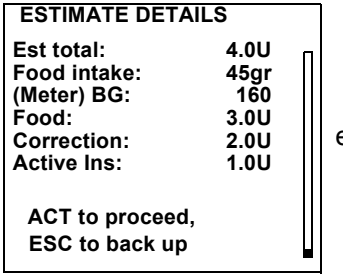
$$\text{food estimate} = \frac{\text{food}}{\text{carb ratio}} + \frac{\text{current BG} - \text{Low BG Target}}{\text{insulin sensitivity}}$$

3 If current BG is between or = High or Low Target BG

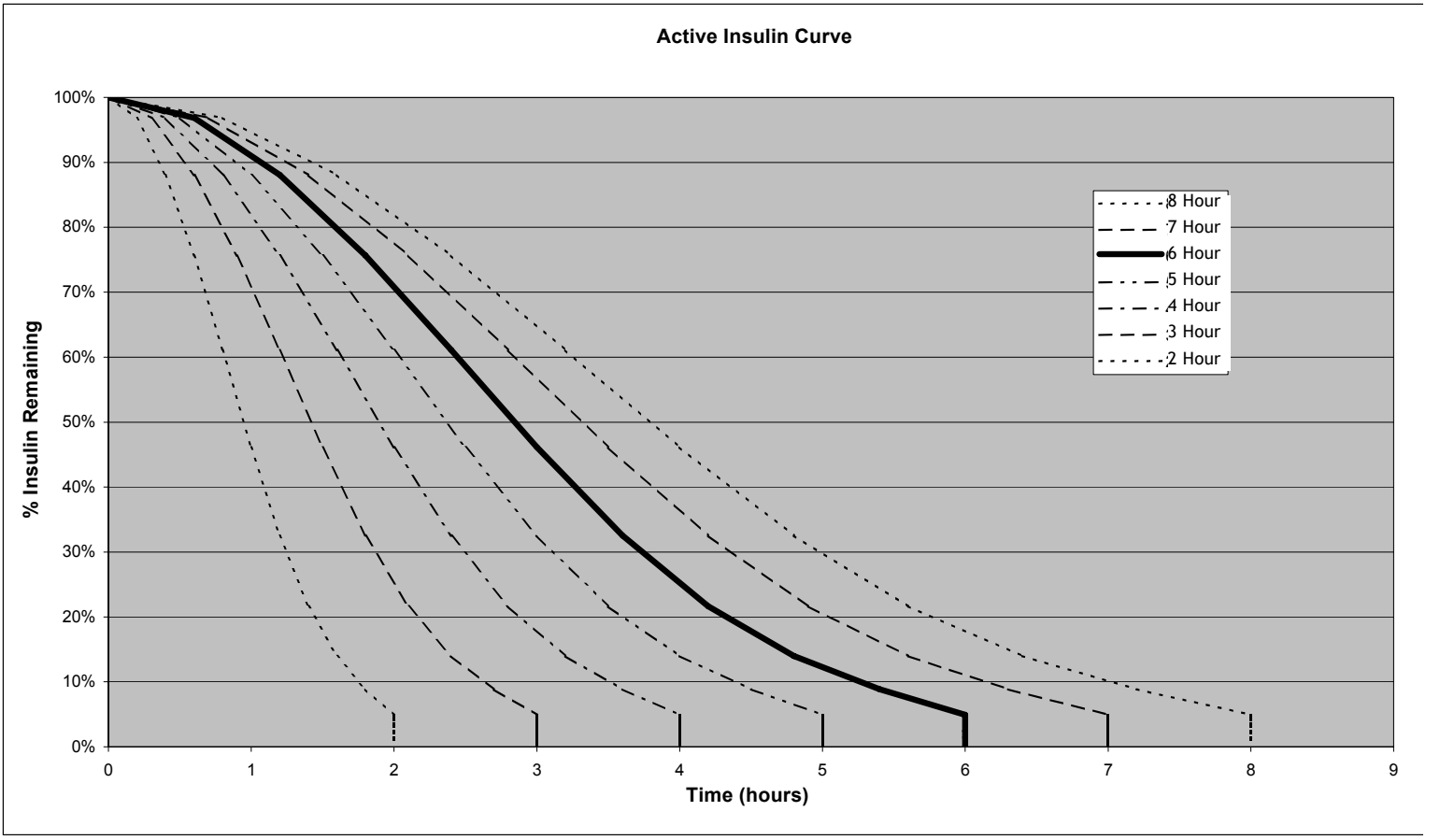
$$\text{food estimate} = \frac{\text{food}}{\text{carb ratio}} + \text{correction estimate} = 0$$

Notes:

- If a Dual Wave bolus is less than the estimate due to the max bolus limit or a user change, the square (sq) portion is reduced first.
- Based on the Active Insulin Time setting you choose, the pump keeps track of how much insulin is still active in your body. This prevents "stacking" of insulin, and lowers the chances of hypoglycemia.
- Active Insulin Curves



(values shown are for example only)



Graph adapted from Mudaliar and colleagues, Diabetes Care, Volume 22, Number 9 September 1999, page 1501

- Active insulin only reduces the correction portion of the estimate, not the food portion.
- For a current BG that is above the high target, if the active insulin is more than the correction estimate, the correction portion of the estimate is changed to zero (0).
- For a current BG that is below the low target, if the active insulin is more than the correction estimate, the active insulin is not considered.

Bolus Wizard feature examples

Settings:

- Carb ratio: 30 grams/unit
- Insulin Sensitivity: 40 mg/dL/unit
- BG Target: 90-120 mg/dL
- Active Insulin Time: 6 Hours

#1: No active insulin from previous bolus delivery. User inputs 60 grams of carbs and does not enter BG.

$$\text{(food estimate)}\quad \frac{60\text{g}}{30\text{g/u}} = 2 \text{ units}$$

estimate = 2 units

#2: No active insulin from previous bolus delivery. User inputs 60 grams of carbs and a BG of 200.

$$\text{(food estimate)}\quad \frac{60\text{g}}{30\text{g/u}} = 2 \text{ units} \quad + \quad \text{(correction)}\ \frac{200\text{mg/dL} - 120\text{mg/dL}}{40\text{mg/dL/u}} = 2 \text{ units}$$

= 2 + 2
= 4 units
estimate = 4 units

#3: No active insulin from previous bolus delivery. User inputs 60 grams of carbs and a BG of 70.

$$\text{(food estimate)}\quad \frac{60\text{g}}{30\text{g/u}} = 2 \text{ units} \quad + \quad \text{(correction)}\ \frac{70\text{mg/dL} - 90\text{mg/dL}}{40\text{mg/dL/u}} = \frac{-20\text{mg/dL}}{40\text{mg/dL}} = -0.5 \text{ unit}$$

= 2 + (-0.5)
= 1.5 unit
estimate = 1.5 unit

#4: No active insulin from previous bolus delivery. User inputs 60 grams of carbs and a BG of 100.

$$\text{(food estimate)}\quad \frac{60\text{g}}{30\text{g/u}} = 2 \text{ units} \quad + \quad \text{(correction)}$$

Correction is **0** because the current BG reading is between the BG High and Low

= 2 + 0
= 2 unit
estimate = 2 unit

#5: Previous bolus activity results in a calculation of 1.5 units unabsorbed (active) insulin.
User inputs 60 grams of carbs and a BG of 200.

(food estimate)

$$\frac{60g}{30g/u} = 2 \text{ units}$$

+

(correction)

$$\frac{200mg/dL - 120mg/dL}{40mg/dL/u} - 1.5 \text{ units (active insulin)} = 2 - 1.5 = 0.5 \text{ units}$$

= 2 + 0.5
= 2.5 unit
estimate = 2.5 unit

#6: Previous bolus activity results in a calculation of 3.5 units unabsorbed (active) insulin.
User inputs 60 grams of carbs and a BG of 200.

(food estimate)

$$\frac{60g}{30g/u} = 2 \text{ units}$$

+

(correction)

$$\frac{200mg/dL - 120mg/dL}{40mg/dL/u} - 3.5 \text{ units (active insulin)} = 2 - 3.5 = -1.5 \text{ units}^*$$

* This negative number indicates that active insulin is sufficient to cover the correction that is needed. Thus, correction will be 0 units. Active insulin does not reduce the food portion of the

= 2 + 0
= 2 unit
estimate = 2 unit

Default settings

Menu	Item	Default Setting	Limits	Increments
Bolus Menu:	Bolus Wizard feature:	Off		
	Easy bolus:	On		
	Easy bolus step:	0.1 u/h	maximum bolus setting	
	Dual/Square bolus:	Off		
	Maximum bolus:	10.0 u/h	0 - 25 u (per single bolus)	
	BG reminder:	Off	0:00 - 5:00	0:30
Basal Menu:	Patterns:	Off		
	Maximum basal rate:	2.0 u/h	0.00 - 35.00 u/h	0.05u
	Basal rate:	0.0 u/h		0.05u
	Temp basal type:	U/H	max basal rate setting	0.05U/H (or 1%)
Utilities Menu:	Lock Keypad:	Off		
	(Alarm) History:	(no defaults)		
	Alert type:	audio, beep-med		
	Auto-off:	Off		
	Low reservoir warning:	(20) insulin units	5 - 50 u; 2nd: @ 1\2 amount (2:00 - 24:00; 2nd: after 1:00)	20 u (0:30)
	(Time/Date) Time:	12 a.m. (midnight)		
	(Time/Date) Date:	1/1/04		
	(Time/Date) Time format:	12-hour		
	Block:	Off		
	Alarm clock:	Off		
	Remote option:	Off		
	Meter option:	Off		
	User Settings:	(no defaults)		
	Language:	English		

Menu	Item	Default Setting	Limits	Increments	Warning Limits
Bolus Wizard feature Settings					
	carb units:	grams or exchanges	none	none	none
	ins to carb (or exch) ratio:	15 grams/u or 1 units/exch	3 - 150g/u or 0.1 - 5.0 u/exch	1 g/u or 0.1 u/exch	5 - 50 g/u or 0.3 - 3.0 u/exch
	(insulin) sensitivity:	50 mg/dL or 2.8 mmol/L	10 - 400 mg/dL or 0.5 - 22.2 mmol/L	1 mg/dL or 0.1 mmol/L	20 - 100 mg/dL or 1.1 - 5.6 mmol/L
	BG target:	100- 100 mg/dL or 5.6-5.6 mmol/L	60 - 250 mg/dL or 3.3- 13.9 mmol/L	1 mg/dL or 0.1 mmol/L	90 - 140 mg/dL or 5.0 - 7.8 mmol/L
	Active Ins Time	6 Hours	2 - 8 Hours	1 hour	

Icon table

Do not reuse:	
Attention: See Instructions for Use	
Date of manufacture (year - month):	
Batch code:	
Use by: (year - month)	
Catalogue number:	REF
Device serial number:	SN
Storage temperature range:	
Fragile product:	
Type BF equipment: (Protection from electrical shock)	
Conforms to IEC60601-1 sub-clause 44.6 and IEC60529 standard.	**IPX7**
Recycle:	
Radio communication:	

A

Accept - Pressing the ACT button to approve the selection or setting.

Active insulin - Bolus insulin that has been delivered to your body, but has not yet been used.

Alarm - Audible or vibrating (silent) notice that indicates the pump is in Attention mode and immediate attention is required. Alarms are prefixed in the alarm history with the letter A.

Alarm clock - Feature you can set to go off at specified times of the day.

ALARM HISTORY - Screen that displays the last 36 alarms/errors that have occurred on your pump.

Alert - Audible or vibrating (silent) indicator that notifies you the pump needs attention soon or that you should be reminded of something. Insulin delivery continues as programmed.

Attention mode - Operating mode that stops all current insulin delivery. This mode indicates an alarm or condition exists that requires immediate attention.

B

Backlight - Pump screen light. Turns on whenever is pressed or is pressed in combination with if not on the HOME screen. The backlight also appears during an alarm (except LOW BATT).

Basal rate - The pump setting that provides a continuous infusion of insulin to keep the blood glucose stable between meals and during the night. Basal insulin mimics pancreatic insulin delivery which meets all the body's non-food related insulin needs.

BASAL REVIEW screen - Shows the basal rates programmed in the pump, with the 24-hour total for each rate.

BG - Blood Glucose

BG reminder - Feature that you can set to remind you to check your blood glucose after a bolus.

BG target - normal blood glucose level

BG unit - blood glucose unit of measure (mg/dL or mmol/L)

Block - Feature that restricts access to all programming except suspend, selftest and the delivery of a bolus with the remote control.

Bolus - A dose of insulin given to cover an expected rise in blood glucose (such as the rise after a meal) or to lower a high blood glucose down to target range.

BOLUS HISTORY - This screen displays the last twenty-four (24) boluses delivered by your pump.

Bolus Wizard feature - Calculates the bolus amount based on personal information of the pump user.

C

Carb ratio - (Carbohydrate ratio). Used when counting carbohydrates in grams. The amount of carbohydrates covered by one unit of insulin. (Also see exch ratio.)

Carb units - The food entry when using the Bolus Wizard feature. Entered as (carbohydrate) grams or exchanges.

Cannula - A short, thin, and flexible tubing at the end of an infusion set that is inserted into the subcutaneous tissue to deliver insulin.

CH - Carbohydrate

Correction bolus - The amount of insulin needed to return a high blood glucose level back down to target range.

Correction bolus factor - How much 1.0 unit of insulin will lower your blood glucose. This factor is used to calculate a correction bolus amount when your blood sugar is high.

(BG level) – (BG target) = X.

X ÷ (corr bolus factor) = corr bolus amount

D

Daily totals - Shows the total insulin delivered (basal and bolus) in the last 24-hours. Maximum records: 14 days

DKA - Diabetic Ketoacidosis

Dual Wave bolus - Combination of a Normal bolus that is delivered immediately, then followed by a Square Wave bolus. The Square Wave portion is delivered evenly over a period of time.

Duration - Amount of time it takes to administer a bolus or basal delivery. Also, length of time for an action or condition.

E

Easy bolus - Method of delivery for a Normal bolus using the Easy Bolus button .

Exch ratio - (Exchange ratio) Used when counting carbohydrates as exchanges. The amount of insulin required to cover one (1) carbohydrate exchange. (Also see carb ratio.)

Express bolus - Method of delivery for any bolus type using the express bolus button .

F

Fixed prime - Fills the cannula with insulin. This is done after you insert the infusion set into your body and remove the introducer needle.

Food bolus - A dose of insulin given to cover the expected rise in blood glucose that occurs after eating.

G

Gastroparesis - A condition of the digestive system that slows down the emptying of food from the stomach.

H

HbA1c - Glycosylated hemoglobin

HDL - High-density lipoprotein
A complex of lipids and proteins in approximately equal amounts that functions as a transporter of cholesterol in the blood.

Hold - Press and continue to press a pump button.

I

Idle - The pump is at the HOME screen.

Infusion set - Flexible tubing with a reservoir connector and an infusion site. This tubing delivers insulin from the pump to the body.

Infusion site - The end of the infusion set held to the body with a tape. It consists of a cannula and an introducer needle.

Insulin sensitivity - The amount by which your blood glucose (BG) level is reduced by one unit of insulin. (Bolus Wizard feature data)

Introducer needle - This needle allows the insertion of a cannula or a sensor into the subcutaneous tissue. It is removed and discarded after insertion leaving only the cannula or the sensor in the body.

K

Kilopascal - A unit of measurement for quantifying force. Used to measure atmospheric pressure. Equivalent to 10,000 dynes per square centimeter.

L

LDL - Low-density lipoprotein
A complex of lipids and proteins, with greater amounts of lipid than protein, that transports cholesterol in the blood.

Link - To turn on and setup the meter option that allows the pump to receive BG readings from a meter that communicates with your pump.

Low resv warning - Programmable warning that notifies you with an alert when either a specified number of units remain in the reservoir or a specified amount of time remains before the reservoir will be empty.

M

Manual bolus - Selectable item available in the BOLUS MENU when the Bolus Wizard feature is active. One method of programming a bolus without the Bolus Wizard feature. (see “Set bolus”)

Manual prime - Fills the infusion set tubing with insulin before you insert the set into your body. (This function is available after a rewind)

Max bolus - The maximum amount of bolus insulin that the pump will deliver at one time. (set by the user)

Max basal rate - The maximum amount of basal insulin that the pump will deliver at one time. (set by the user)

Meter - The Paradigm Link Blood Glucose Monitor Powered by BD Logic™ Technology (Paradigm Link meter). Your pump can be programmed to receive your BG readings from this meter.

Meter option - Feature that allows the pump to receive BG readings from the Paradigm Link meter.

N

Normal mode - Regular operating mode. No special features are active, no alert or alarm conditions exist. Insulin delivery is normal during this mode.

Normal bolus - An immediate delivery of a specified unit amount of insulin.

Now portion- The "Normal" portion of a Dual Wave bolus. The now portion delivers immediately and is then followed by the Square portion.

P

Pattern feature - Extended pump feature that allows you to program optional basals (Pattern A, Pattern B) that support activities that are not a part of your day-to-day routine, but are usual in your lifestyle. Such activities could be a sport that you do once a week or a change in your sleep pattern over the weekend.

Pattern, standard - Your normal basal that supports your usual day-to-day activity. When the Patterns feature is off, the pump uses your standard (basal) pattern.

Press - To push and release a button.

Prime - (see fixed prime or manual prime)

PSI - Pound-force per square inch

R

Reservoir - The syringe that holds insulin.

Resume - Restarts basal delivery after the pump is suspended.

Rewind - The pump drive moves back to its starting position to prepare the pump for a new reservoir.

RF - Radio frequency

S

Scroll - Press the up or down arrow buttons to move through the screen text.

Select - Pressing the up or down arrow buttons to highlight a desired screen item.

Set bolus - Selectable item available in the BOLUS MENU when the Bolus Wizard feature is inactive. One method of programming a bolus without the Bolus Wizard feature. (See Manual bolus.)

Special mode - Operating mode that indicates one or more special functions is active or a condition exists that requires attention.

Square Wave bolus - Immediate bolus delivered evenly over a specified time period (30 minutes to 8 hours).

Square Wave portion - (Sq) The second part of a Dual Wave bolus. The Square Wave portion delivers evenly over a period of time after the NOW portion delivers.

Status screen - Displays the current operations of the pump, including active functions, the most recent basal and bolus deliveries, reservoir information, and battery condition.

Step - Measurement of insulin that you set and use for Easy Bolus delivery.

Suspend - Function that stops all insulin delivery. Any current bolus and/or prime deliveries are cancelled. The basal delivery is paused until restarted.

T

Temp - Temporary

Temp basal - (Tmp basal) Temporary one-time basal insulin with a specified amount and duration. Used to support insulin needs for special activities or conditions that are not part of the normal daily routine.

U

µL - microliter

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